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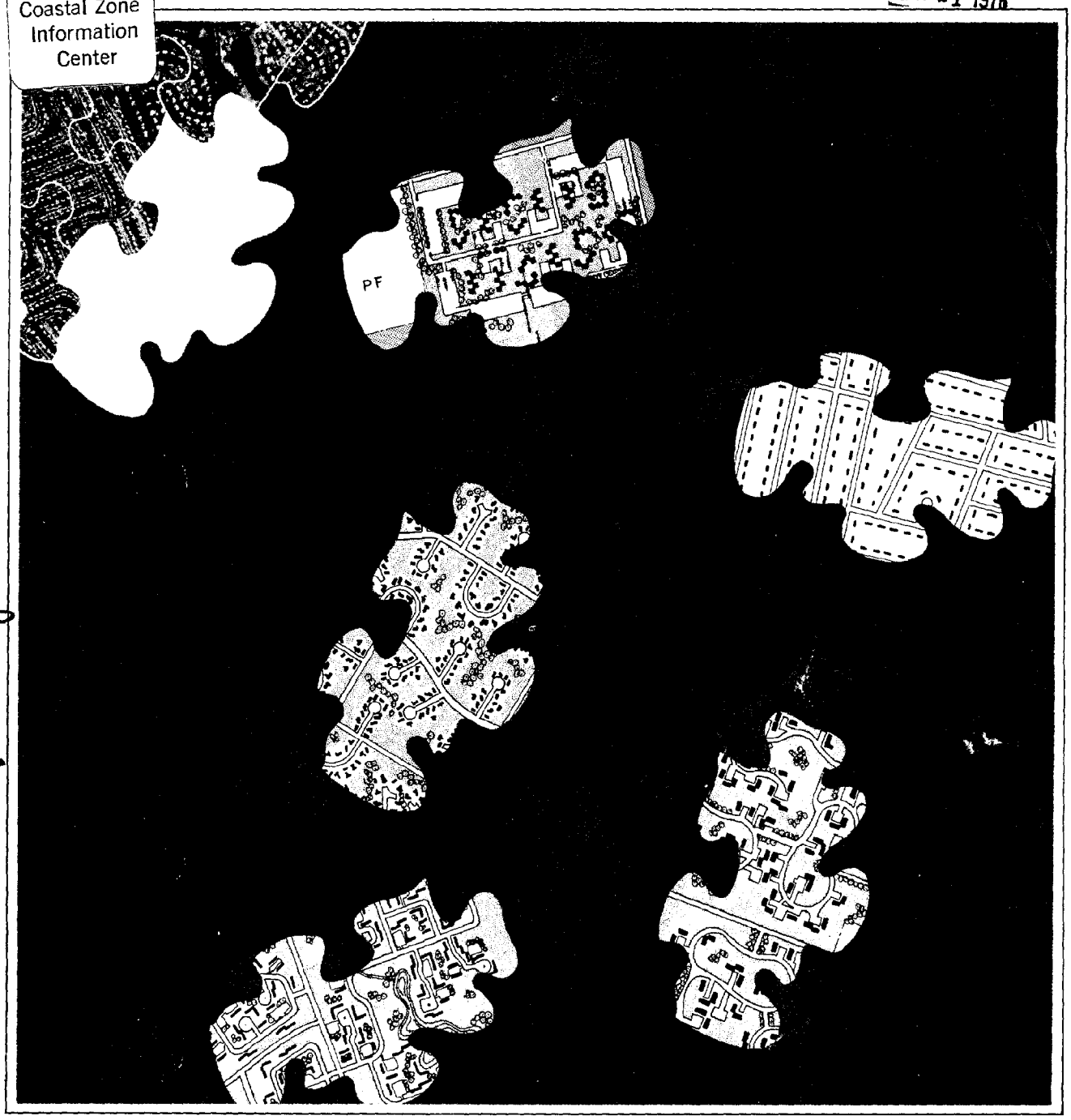

Council on Environmental Quality.

The Costs of Sprawl

Literature Review and Bibliography

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The Costs of Sprawl

2/ Environmental and Economic Costs of Alternative Residential Development Patterns at the Urban Fringe

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Literature Review and Bibliography

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Prepared for the Council on Environmental Quality; the Office of Policy Development and Research, Department of Housing and Urban Development; and the Office of Planning and Management, Environmental Protection Agency

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INTRODUCTION

A. Purpose of Study

Local government officials devote a large proportion of their time to considering and acting upon development proposals which substantially affect their communities in many ways. As the proposed projects increase in size, economic and environmental issues become more pronounced.

In making development decisions, public officials take account of:

1. The petitioner's position as an investor;

2. The compatibility of the proposed project with its neighbors;

3. The ability of the community to service the development with roads, utilities, schools, etc.;

4. The impact of the proposed development on the environment; and

5. Overall suitability of the project to the community (especially in terms of compliance with the comprehensive plan, design quality and expectations as to public costs and revenues).

While information bearing on development proposals has been increasingly broader in scope, more specific, and of higher quality, local government officials continue to have considerable difficulty in assessing the relative merits of alternative types of housing, general development patterns, and commercial strip versus center developments. To help compensate for this knowledge deficiency, the Council on Environmental Quality (CEQ), in cooperation with the Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA), has commissioned the Real Estate Research Corporation (RERC) to undertake a study of the environmental and economic effects of alternative development patterns. The results of that study are presented in two documents, The Costs of Sprawl -- Literature Review and Bibliography and The Costs of Sprawl -- Detailed Cost Analysis. The literature review and bibliography summarizes the existing knowledge available to local government officials faced with development decision-making, and presents extensive bibliographies pertaining to that knowledge.

The findings of this volume are then used for a detailed analysis of costs and adverse effects of development, presented in a separate companion document. For that study, six prototype housing patterns at the neighborhood level and six prototype development patterns - representing sprawl, totally planned and planned unit development alternatives -- at the community level are costed out by detailed elements (e.g., school construction, police protection); both capital and operating-maintenance costs are given; indirect costs or effects related both to the environment (e.g., water pollution) and persons (e.g., travel time) are summarized. An analysis of the process of development over time and according to which sector of the economy is affected -- households, builder-developers, or government -- is presented as well. Similar cost analyses are presented for different types and sizes of commercial developments. The metropolitan-wide implications of alternative development patterns also are summarized.

B. Literature Review and Bibliography

This document, The Costs of Sprawl -- Literature Review and Bibliography, consists of three sections. Section I is an essay on the environmental and economic effects of alternative development patterns, based on both a review of the relevant literature and the extensive background of Real Estate Research Corporation regarding urban development. Section II is a general bibliography of materials reviewed as part of the literature search. Section III is an annotated bibliography, in which the more relevant or useful documents from the general bibliography are briefly described.

The overall structure of the literature review, general bibliography and annotated bibliography is similar. However, all documents in the general bibliography are not annotated, nor given mention in the literature review. A document included in the general bibliography was selected according to two basic criteria: whether it contained information about the costs of alternative development patterns, particularly if it would prove useful for detailed cost analysis, and whether it would be of value to a local government decision-maker. Reference numbers used in the literature review are unique numbers assigned to documents in the bibliographies; full citations of sources are presented in the bibliographies.

RERC undertook a comprehensive search of the literature, followed by systematic compilation and description, with the selection of the most relevant studies both for annotation and the literature review. Since knowledge, and consequently published studies, are currently and rapidly being undertaken, it was attempted to include the most timely material, but since any bibliography or literature review is dated, there may be works currently available that were not available at the time of the study. Similarly, in an area as all-encompassing as that of this study, it was necessary to limit our literature search somewhat; it is possible that some relevant material may have been omitted inadvertently. In large measure, however, the literature review and bibliography represent a summation and organized, systematic compilation of the knowledge available regarding development -- particularly as it relates to planned versus sprawl alternatives and to environmental, personal, and economic costs.

I. SUMMARY OF COST IMPLICATIONS

This essay attempts to present in a brief and concise manner the intricate configurations of direct costs and indirect effects -- both environmental and personal -- of development of different housing types and alternative development patterns, as well as summarize the available knowledge about such development. It is difficult to generalize about cost implications or data availability without overlooking or simplifying elements; likewise it is difficult to avoid exaggeration of elements in order to point out differences. Both of these difficulties are problems, nevertheless, the essay reveals much of value about estimating costs of alternative housing types or community patterns.

The following table summarizes the variations in costs and effects, as well as the availability of information:

SUMMARY OF KEY DEVELOPMENT COST CONSIDERATIONS

Cost or Effect Category	Sensitivity of Cost to Development Patterns	Sensitivity of Cost to Housing Densities	Sensitivity to Site and Regional Location Factors	Incidence of Cost	Sources of Information	Availability of Cost Data
Land	Prices more orderly in planned developments, with less speculation compared to sprawl. Not clear what differences are in overall magnitudes.	Costs decrease per unit and increase per acre as density increases.	Variation in cost at least 60% above and below average cost.	Land developer purchases originally; cost passed on to builder then to purchaser of property. Government obtains most rights-of-way by dedication, buys most other public sites.	Appraisals, case studies; FHA reports; HUD studies; land use inventories for particular communities.	Factors determining value and their relative importance not well documented. Information on land values scattered, not comprehensive and must be assembled.
Housing	Little or no inherent cost differences because of development patterns per se, however planning could entail higher standards and, thus, higher costs.	Costs per unit decrease as density increases; smaller units, fewer garages, less appliances.	Colder climate increases costs; also severe site conditions increase costs.	Builder pays, passed on to owner in purchase price and renter in monthly rent payment.	U. S. Census; HUD-FHA; NAHB studies.	Data on multi-family inferior to single family data.
Transportation and Utilities	Linkage costs greater in sprawl; duplication, upgrading and replacement also more likely. Costs occur earlier in larger increments in planned development.	Distribution and collection system costs decrease per unit and increase per acre as density increases.	Roads and sanitary sewer costs affected somewhat; storm sewer and water affected greatly; electricity; telephone and gas not significantly influenced.	Developer provides some facilities, passed on to builder, then to purchaser of property. Utilities provide facilities and services; costs reimbursed by user fees. Government pays part of roads, sewer, and water.	DOT studies; utility company records; case studies; cost-revenue, fiscal and economic impact studies at state and local levels.	Data are either on unit or per capita basis; difficult to relate to housing types and development patterns. Data on sprawl lacking and/or disaggregated.
Public Facilities and Services	Probably greater and earlier costs attributable to more and better facilities in planned development; more liklihood of duplication and replacement in sprawl.	Uncertain and irregular; some variation due to population only, some to area differences.	Minimal; similar to variations among all buildings.	Local government or not-for-profit corporations. Paid by taxes and user fees.	Fiscal and economic impact studies; planning standards from recreation, educational, health care, governmental organizations; case studies from particular localities; national statistics from federal agencies.	Not related to housing or development types; standards based largely on per capita, not area, basis. Data on sprawl lacking and/or disaggregated.
Environmental	Air, water, noise pollution impacts somewhat mitigated by planned development; preservation of unique areas and natural features more likely and land uses are more related in planned communities.	Generally become more adverse as overall density increases - clustering at same density is beneficial.	Considerable variation in environmental effects; severe site or climatic conditions may prohibit development.	Local government and owner-occupant.	EPA studies; environmental impact analyses; planning documents for some state and local areas.	Small amount related to housing types and development patterns; not comprehensive in many instances.
Personal	Generally more favorable in planned development.	Discretionary time increases with density increases. Safety, privacy, comfort vary, but tend to decrease as overall density increases.	Not directly related to densities or development patterns to a significant extent.	Household and individual.	Traffic analysis from Highway Research Board; crime statistics from Dept. of Justice.	Usually not considered as part of development; deficiencies in some areas; in general not related to development patterns or housing types.

Literature Review

A. Direct Costs

Higher residential densities require substantially less land for housing, perhaps as little as one-tenth of the single-family residential land requirements for a given number of dwelling units. Likewise the land requirements for rights-of-way, recreation, schools, and institutions decrease with higher densities, but not as greatly as residential land. The total land area needed for walk-up apartments is approximately one-half the single-family land requirements, while high-rise apartments need only one-fifth the total land required for single-family purposes.

Housing costs decrease as density increases, because of economies of scale and common elements as well as reduced unit sizes and less amenities. Multi-family housing units of the same size with similar amenities are only slightly less costly than are single-family detached units -- exclusive of land, roadway and utility costs.

Roadway and utility networks are reduced as development patterns become more orderly and contiguous and as densities increase. These reductions are roughly in proportion to variations in total land requirements. For instance, compared to requirements for conventional single-family areas, networks servicing walk-up apartments are approximately one-third and high-rise apartments only one-fifth as extensive for the same number of dwelling units. Sources of supply and treatment plants do not vary much with densities or development patterns per se; such facilities as wells and sewage treatment plants will vary with population. Storm sewerage requirements increase as density increases, due to higher proportions of paved areas. Topography, vegetation and soil conditions also are important factors determining storm drainage requirements.

Costs of schools, library, recreation, health, and administrative facilities and services primarily vary with the population served rather than housing types or development patterns as such. However, since the population characteristics can vary greatly from one housing type to another, their costs can differ markedly. Lower densities and scattered developments increase the likelihood that multiple-locations for these operations are needed; moreover, lower densities entail longer travel distances by users to reach dispersed facilities.

Where services are provided to housing units -- such as police and fire protection, trash pickup, tree care, mosquito abatement, and mail delivery -- the costs per household tend to decrease as density increases and/or development patterns are more orderly and compact. The major reason for this is less distance or area to serve. However, on an acreage basis, these cost savings may be offset at higher densities because of such factors as congestion, more accidents and damage, more expensive equipment (e.g. fire equipment) and more public services needed (e.g. more frequent trash collection).

B. Indirect Effects

Environmental effects related to densities and patterns of development are rather elusive and difficult to summarize well. Nevertheless, it is important to recognize that the quality of planning and the density of use are both factors to take into account. Good planning is beneficial at all densities. Nevertheless, air quality, water quality, noise, soil erosion, and vegetation/wild life generally are adversely affected by increasing densities. However, by clustering development in a rational manner, it is possible to conserve ecologically sensitive areas and minimize adverse effects at higher densities. While higher densities cause greater automobile concentrations, driving trips and distances are reduced. Noise from children, air conditioners and automobiles is more of a problem at higher densities. Water runoff is greater at higher densities because of greater coverage of buildings and paved areas, but soil erosion can be reduced by careful planning. Energy consumption is less at higher densities because housing units are smaller, common walls reduce heating and air conditioning requirements and automobiles usage is reduced, at least theoretically.

Differences in the personal effects of alternative development patterns or housing types are also elusive and difficult to summarize, largely for two reasons: individual reaction to different patterns may vary as widely as the number of individuals, and clear choices among patterns are not possible, but only trade-offs among various characteristics. Thus, there are no easy distinctions among densities, housing types and development patterns for household budgets, time consumption, personal health and safety, and psychic costs. In general, single-family home ownership is more costly, even after tax adjustments, then renting apartments. Living in single-family homes also requires more in terms of time, both for household chores and auto travel. In higher density areas, travel time is reduced due to

shorter trips, and household time is reduced for maintenance and therefore increased for leisure. There is not a clear difference among housing types or densities as to occurrence of crime. Traffic accidents may be more frequent in higher density areas due to congestion, but this is perhaps offset by more auto travel in lower density areas. In either case, well-designed and planned streets and highways reduce accident rates. As regards psychic costs, there are trade-offs among housing types and denisites as to privacy, comfort and security, possession and responsibility, and aesthetic values. In this regard, individual preferences, attitudes and tolerances will tailor choices among housing types and densities.

C. Preferences

Results of preference surveys show that the degree of resident satisfaction in a residential environment is directly related to the degree of planning.

Key factors in the choice of housing are: (1) the overall community design and quality of facilities and services; (2) accessibility to place of employment, shopping, etc.; and, (3) the quality of the area's environment (amount of open space, trees, etc.). Residents of highly planned communities rate conveniences and amenities as primary consideration, while residents of less planned communities consider house and lot characteristics as most important.

Density is also highly correlated with resident satisfaction. Because higher densities mean higher noise levels and often mean less open space, satisfaction usually increases as density decreases. The most popular site arrangement, the single-family cul-de-sac, is one which favors privacy, low noise levels, more open space, and the concept of an intimate neighborhood.

Of the major types of housing -- single-family detached, townhouse (single-family attached), garden and high-rise apartments -- the majority of Americans, consistent with traditional preferences, still choose single-family detached homes as their goal. Townhouses are increasingly popular as a transitional housing type between apartments and single-family detached homes.

Many people today are interested in the equity and tax benefits of ownership yet do not wish to be restricted by maintenance responsibilities. Thus, the condominium form of ownership is becoming increasingly popular for those who wish to own a high-rise apartment or a townhouse.

In choosing a "residential package," the housing consumer is exercising a vote as to which locational housing features he prefers. The home builder or developer, in turn, is concerned with trying to anticipate these preferences in order to meet market demand.

D. Availability of Cost Information

The literature search sought information on differences in direct costs and adverse effects attributable to variations in housing types (i.e. single-family homes, townhouses, walk-up apartments, and high-rise apartments) and development patterns (i.e. planned communities, planned unit developments, and sprawl communities). The search identified:

1. Relatively little cost data pertaining to differences in housing and development types;

2. Emphasis on residential densities rather than housing types (however, conversion is readily possible in most instances);

3. Considerable information on planned communities, but very limited and disaggregated information on conventional sprawl communities;

4. Inadequate comprehensive and quantified information on environmental or personal effects;

5. Scarce data relating environmental or personal effects to alternative development patterns, housing types, or densities;

6. Very little hard data on metropolitan implications of the alternatives;

7. What data that are relevant to metropolitan areas cannot be applied in most cases to community or neighborhood levels; nor are national statistics directly applicable;

8. Case studies do not provide directly comparable data, and must be used judiciously if applied elsewhere;

9. Facility and service level standards must be considered carefully since there are substantial differences in standards from source to source; there are inconsistencies among standards and some standards are unrealistically high.

II. GENERAL CONSIDERATIONS

Before addressing in detail the cost implications of specific development elements (e.g. land, transportation and utilities, etc.), there are several considerations which deserve to be discussed.

A. Development Decision-Making

In general, a local government specifies in its comprehensive plan and zoning ordinance how land is to be used. To the extent that landowners and developers are satisfied with these specifications, the government's role then is simply to enforce codes and provide facilities and services in a conventional manner. This being the case, it is crucial that considerable thought, understanding, and debate go into the plan and zoning ordinance. Unfortunately, this often does not happen.

Frequently, land owners and/or developers petition local government for the right to use property differently than indicated by the comprehensive plan and zoning ordinance. As projects increase in scale and complexity as planned development provisions are instituted, petitions for variations from the plan and basic zoning ordinance are increasingly prevalent. Such petitions start a complex decision-making process involving the petitioner and his agents on one side and several local government boards and commissions on the other. Participation by interested citizens in the process as well seems to be increasing, both in amount and intensity of involvement.

Participants in such processes are well aware that the petitioners often are better fortified with facts and other knowledge than are either the opponents or the public decision-makers. This imbalance frequently has had a telling and not always desirable effect on the final outcome of the deliberation.

While local officials may have access to a staff or consulting engineer, his contribution commonly is too technical, specific and detailed to apply well to broad, multi-option development decisions. On the other hand, other professional advisors such as planners, budget officers and municipal attorneys frequently do not have adequate command of cost implications. As a consequence, public decision-makers are making major development determinations on the basis of: (1) general or indirect information and counsel from their technical assistants; (2) the petitioner's studies and testimony; (3) opinions of concerned citizens, and

(4) their own knowledge, perspective and philosophy. All of these have a legitimate role, but more direct, objective information on the cost implications of different types of development would be useful to all participants in the process.

B. Environmental Considerations

Although cost-revenue implications of development are the central focus of development decision-making, the impacts of development on the environment have become of increasing concern.

Development of residential and commercial areas in previously undeveloped areas, or a change in intensity of development, may be viewed as a process of disruption and restoration of an ecological balance. All biological activity -- and as regards development, economic activity -- occurs within the context of an ecosystem, which is an integrated web of both human and natural factors occurring within a certain habitat and which normally tends toward some equilibrium. If an ecosystem balance is disrupted by the introduction of some new factor, a different ecosystem will be generated involving a new balance consisting of changed species, composition, interrelation, and function within the new environment.

Development typically involves a process of change from an agricultural or forest ecosystem to an urban ecosystem. Such development, in altering a former environment and creating a new environment, may or may not have adverse effects. The new ecosystem will certainly be different, but not necessarily harmful. Thus, it is important for local government officials in considering development to also consider the changes in environment implied, to consider how changes may differ according to pattern of development, and to consider how some of the adverse effects of the change can be mitigated.

It should be stressed that within each development pattern a number of options are available which will to a varying degree moderate the impacts. Such alternatives as public transit versus private auto travel, high-level sewerage treatment versus individual septic tanks can drastically modify the final level of impact. Furthermore, some alternatives offer feasible opportunities for impact moderation at a local level, while others are only applicable at a regional or national level. It should also be noted that choosing among such alternatives may require making very difficult trade-offs. An attempt to reduce one environmental impact may increase another. Or the reduction of environmental impacts may have adverse economic and social impacts.

Therefore, although such analysis is difficult, the economic and environmental consequences of development must be assessed by local officials. As stated previously, there is often scant information or insufficient analysis available in making such decisions.

C. Economic and Environmental Impact Studies

Requirements for objective assessments of the economic and environmental effects of large-scale developments have increased considerably in prominence in recent years at national, state and local levels. Environmental impact studies are required in seeking Federal and state financial assistance for many purposes. Fiscal impact studies are increasingly required by counties and municipalities as part of planned development applications.

1. Economic Impact Analysis

Two classic studies measuring economic impacts of development are Isard and Coughlin's Municipal Costs and Revenues Resulting from Community Growth, 1957 (ref. no. 06-022) and Wheaton and Schussheim's The Cost of Municipal Services in Residential Areas, 1956 (ref. no. 03-018). One of the most comprehensive recent studies is Sternlieb's Housing Development and Municipal Costs (ref. nos. 01-119, 01-120), which presents technical data on government costs by housing types. Other recent studies of value are Mace and Wicker's Do Single-Family Homes Pay Their Way?: A Comparative Analysis of Costs and Revenues for Public Services, 1968 (ref. no. 01-069) and Muller and Dawson's The Fiscal Impact of Residential and Commercial Development: A Case Study, 1972 (ref. no. 01-084). Among the more relevant critiques of cost-revenue studies are the following: William Wheaton, "Application of Cost-Revenue Studies to Fringe Areas," 1959 (ref. no. 06-044); John Kain, Urban Form and the Costs of Urban Services, 1967 (ref. no. 09-008); Ruth Mace, Municipal Cost-Revenue Research in the United States, 1961 (ref. no. 06-027); and International City Managers Association's Apartments in the Suburbs, 1964 (ref. no. 01-054).

More recently, impact studies have broadened in scope to consider the implications of costs and revenues associated with growth and development itself. One of the first studies to consider the regional or metropolitan impact of growth alternatives was prepared in 1967 by the Howard County, Maryland Planning Commission in evaluating the new community of Columbia,

Maryland (Howard County, 1985, ref. no. 21-066). Direct cost comparisons of urban sprawl and planned development alternatives for Howard County are made -- generally favoring the latter. Similar analyses of economic growth are included in Alternative Growth Strategies for San Jose, 1971 (ref. no. 01-098); Santa Fe Growth Impact Study, 1973 (ref. no. 01-156); San Diego Joint City/County's Economic Analysis Project, 1973 (ref. no. 06-049); Fairfax County, Virginia's Five-Year Countywide Development Program, 1972 (ref. nos. 03-007, 03-008, 03-009); The Barrington, Illinois Area: Cost-Revenue Analysis of Land Use Alternatives, 1970 (ref. no. 03-001); and The Economics of Urban Growth: Costs and Benefits of Residential Construction, 1971 (ref. no. 06-028). A compilation of articles on this subject is Growth Cost - Revenue Studies, 1972 (ref. nos. 01-023, 01-107, 02-035, 06-005, 06-040).

Although the sources cited above include exceptions, in general, most impact studies do not relate to differences in densities, types of housing or development patterns. At the time that local government officials are making key development decisions -- such as adopting a comprehensive plan, revising the zoning of a property or approving a subdivision plat -- they typically have either quite general cost-revenue information or specific fiscal impact studies. The impact study data usually are detailed for the proposal under consideration, but almost entirely lacking with respect to available development options. Moreover, the vague allocations of costs among participants in the development process make it difficult to obtain comprehensive estimates of cost impacts.

Presently few counties or municipalities are able to allocate either capital or operating costs by land use categories on a systematic basis. Their budgets are too aggregated along financial accounting lines to adapt readily to this purpose. While it is possible to obtain highly disaggregated capital cost data, to be meaningful these data must be applied to the kinds of development options being considered.

In most development deliberations, the characteristics of the housing being considered are translated to household characteristics and the project then is largely evaluated in terms of the people who would live there -- their incomes, schools pupil enrollments, number of automobiles, recreation preferences, community attitudes, etc. Seldom is it assumed that a given type of housing development could accommodate a wide range of household types, nor is it assumed that a given population could be satisfactorily housed in markedly different housing types. As a consequence, the merits of alternative housing types *per se* are seldom evaluated.

Impact studies have broadened in scope recently in another way, to encompass both economic and environmental factors involved in development. Examples of current impact studies which treat both environmental and fiscal matters comprehensively are those submitted for new communities under Title VII of the 1970 National Housing Act. New methodologies for calculating cost-revenue and environmental impacts are being devised, many of which use the computer for analysis and can be readily adapted to variations in local situations. The Real Estate Research Corporation's Fiscal Impact Models for New Communities, 1972 (ref. no. 06-030) analyzes the fiscal consequences of building the proposed Shenandoah, Harbison, and Rancho San Diego new communities, among others. Another example of this type of study is the Michigan State Housing Development Authority's Community Impact Model, 1973 (ref. no. 01-008). Rahenkamp, Sachs, and Wells have developed a model to predict the impact of new planned developments (ref. nos. 01-051, 21-064, 21-115) which considers environmental as well as fiscal costs. Similarly, an article by Crouch and Weintraub, "Cost-Benefit Analysis of a PUD," 1973 (ref. no. 21-150) addresses the same issues. The Urban Land Institute's Measurements for Evaluating Land Developments, 1972, (ref. no. 01-109) contains an outline for evaluating physical changes in the environment, as well as economic costs, resulting from land development.

2. Environmental Impact Analysis

Another type of study relates specifically to detailed analysis of natural features, and since natural and environmental features vary considerably, it is virtually impossible to conduct such an analysis without specific reference to a particular site. Detailed assessments of environmental factors as they relate to impacted sites are presently required for all major Federal actions by the National Environmental Policy Act of 1969. Several states have also passed legislation requiring similar impact statements from state projects and, in certain cases, private development. As environmental concern has grown, many local governments are also requiring environmental inventories and enacting environmentally-oriented controls or zoning regulations. A checklist of the types of information required for such comprehensive analysis is presented in Leopold, A Procedure for Evaluating Environmental Impact, 1971 (ref. no. (22-042). An example of local regulations relating to the environment is the Township of Medford, New Jersey's Draft Ecological Planning Study, 1973 (ref. no. 22-077).

Literature Review

A good background and general information source for environmental analysis is Kormandy, Concepts of Ecology, 1969 (ref. no. 22-080). Sources which provide background information or detail methodologies or approaches to analysis are McHarg, Design With Nature, 1969 (ref. no. 22-046); Three Approaches to Environmental Resource Analysis, 1967 (ref. no. 22-078); Tourbier's "Environmental Protection in Urban Growth Areas," 1972 (ref. no. 22-063). Rancho San Diego Environmental Analysis, 1972 (ref. no. 22-076) is an example of a comprehensive environmental impact statement for a proposed California new community.

Such assessments of environmental factors can be undertaken by non-professional volunteer groups with professional guidance, but the more common procedure is to seek the services of a professional environmental planner to compile and map source data and interpret the findings.

Source data used in these studies usually include such factors as:

a. climate and metorology, for both regional and sub-regional areas

b. geology and physiography, for bedrock and surface geology, and topography

c. hydrology, for ground and surface water quality data

d. soils, by type, fertility, stability and erodability

e. plant and animal associations

f. land use

Other factors particular to a site may be included, such as historical, social and visual character, access, and special hazards. Unfortunately, availability of such data is very limited. Although the Department of Agriculture Soil Conservation Service has surveyed and mapped soil data for much of the country -- and has published reports which include such factors as suitability for road and building foundations -- many parts of the United States still have only sketchy information on geology and soils in readily obtainable form. Information on vegetation and wildlife is also extremely variable in its scope and emphasis, but the U.S. Forest Service and the Fish and Wildlife Service, together with state conservation

departments and some universities, are all likely sources of such data. Some states are beginning to establish data banks of environmental and land use information, but this often is at a generalized, large scale level. As a result, environmental planners must frequently generate data from site inspections and air photo interpretations.

Other studies deal with the impacts of growth or non-growth alternatives upon the environment. Although such studies focus largely on environmental issues, it is never without reference to an economic context. Examples of such studies include A New Community in Amherst, 1971 (ref. nos. 21-080, 21-081); Santa Rosa, California's Optimum Growth Study, 1973 (ref. no. 22-043); The Impact of Growth on the Environment of San Jose, 1973 (ref. no. 22-032); The Barrington, Illinois Area: Evaluation of Growth and Governmental Alternatives, 1970 (ref. no. 22-007); and Orange County, California's Population Growth Policy and Development Strategy, 1972 (ref. no. 22-053). A summary of economic and ecological analysis techniques is found in Isard et al's Ecologic-Economic Analysis for Regional Development, 1972 (ref. no. 22-030).

3. Assessment of Impact Studies

While these impact studies provide decision-makers with much more information than they had previously and some improvements in development have resulted, there is considerable room for better studies, greater competence in interpreting findings, and for making the application, review, and decision-making process more systematic and explicit.

In developing and utilizing economic or environmental impact analyses, certain issues must be considered; these issues include:

a. The development for consideration usually is compared only with present circumstances, whereas it also should be compared with alternative futures with and without the subject development (i.e., if this development does not occur, something else will happen to the property).

b. Consideration of additive versus redistributive impacts, while elusive, is very important. The smaller the frame of reference the more likely the impact is additive (e.g., traffic at the neighborhood level); whereas from a metropolitan vantage point most development impact is redistributional in that it would occur somewhere in the area in any event.

c. Most impact studies use average cost rather than marginal cost, which take account of available capabilities.

d. Economies of scale are largely ignored because of the uncertainties and complications of dealing with them.

e. Effects usually are analyzed only in terms of the local governments involved (municipal and school); other special district and broader regional considerations are seldom included.

f. Most fiscal impact studies focus mainly on major issues of numbers of school children and property taxes, often omitting other substantial costs and revenue sources.

g. Costs and revenues typically are allocated to population and residential developments only, rather than being allocated to all parts of the community including commercial and industrial areas.

h. The alternative developments being evaluated not only have different direct cost-revenue and environmental effects, but the characteristics of alternative development themselves have other pervasive effects on the community which are seldom addressed (e.g., differing recreation preferences of residents).

i. While it is generally believed that various types of development mature differently in terms of property values, characteristics of residents, service needs, and other factors, most impact studies consider only the development in its new state without regard to conditions years later.

j. During the process of creating the development, the year-to-year costs and revenues vary greatly -- with costs exceeding revenues for a substantial time (perhaps permanently). These year-by-year cash flows frequently are not presented.

k. How costs are incurred, who bears them (initially and ultimately), and how they are financed and amortized are important considerations usually accorded little attention.

l. The costs of servicing various densities or patterns of development (as distinct from population sizes and compositions), is inadequately handled in nearly every case. Per capita or per household estimates are commonly used because reliable data on servicing different types of development are virtually non-existent.

m. The costs of tolerating adverse effects versus the cost of abatement are so puzzling they are avoided in most analyses. Not only is measurement difficult, but the interrelationship of environmental and economic factors is also difficult to define.

Summary

Although these flaws are common in development impact studies, the importance of the information generated by such studies clearly justifies their use -- and continuing efforts to improve them.

D. Housing Types and Development Patterns

Another type of problem exists in analyzing the impacts of development, apart from the drawbacks of impact studies previously cited. This conceptual problem lies in the necessity for making clear delineations among housing type and development pattern alternatives for analytical purposes. There is a tendency to look for the best example of planned development and the worst examples of sprawl, for instance. While this may dramatize differences, it is also necessary to note that the variations within specific categories of housing or development pattern are perhaps as significant as are the variations among categories.

Comparisons are being made among gradations or continuums rather than purely distinct elements. Densities range from near zero to one hundred units or more per acre, with combinations of housing types being quite prevalent over a wide middle range of densities. Some planning is present in all sprawl processes, though on a disjointed and fragmented basis; and not all planned developments are equally well planned and implemented.

Moreover, substantial cost differences may occur for reasons other than variations in physical forms. Significant other determinents include but are not limited to the following: (1) the pattern of land ownership and land prices; (2) local government jurisdictions, powers, finances, and policies; (3) availability of facilities and services; (4) developer size, experience, financing, and market orientation; (5) the location, size and character of the project; and (6) the nature and quality of neighboring or competitive developments.

Although the creation of prototypes for analytical purposes requires an acknowledgement that the continuum of planning that exists is not preserved, by a rigorous adherence to objectivity and by focusing on average or typical characteristics it appears reasonable that meaningful distinctions in costs and environmental effects can be determined among housing types and development patterns.

III. LAND USE, BUDGETS AND PRICES

A. Land Use

The use of land is a major issue, a crucial, complex, comprehensive matter which is considered here only as an element of cost among the many elements which comprise the costs of housing and development. In a broad context, land use issues include:

1. What is land?
2. What are the determinants of land use and how do they function?
3. Who has a right to determine land use and how?
4. How are land values determined?
5. Who should pay the costs and reap the benefits of land use, and how should these allocations be made?
6. How should property rights be related to personal and societal rights?
7. What are the temporal elements of land use and changes in use?

It can be appreciated that these issues interrelate with most all aspects of our society and economy. Of primary interest to this study are: (1) the major participants in land use decision-making; (2) amounts of land devoted to various purposes; (3) land prices by type of use; (4) environmental considerations; and (5) costs entailed in urbanization.

Two sources which summarize the issues involved in land use, and deal with land as a scarce natural resource are the Environmental Protection Agency's Land Use and the Environment, 1970 (ref. no. 22-068) and the Rockefeller Brothers Fund's The Use of Land, 1973 (ref. no. 22-081).

Sources which outline land planning alternatives, focusing on land use in planned unit developments or new communities, are Land Planning: Better Housing Environments, 1970 (ref. no. 01-134); "Land Use Ratios for Big PUDs," 1971 (ref. no. 21-008); Burchell and Hughes' Planned Unit Development -- New Communities American Style, 1972 (ref. no. 21-019); Huntoon's PUD: A Better Way for the Suburbs, 1971 (ref. no. 21-068); National Association of Homebuilders'

"Land Use in New Towns," 1972 (ref. no. 21-099); and Real Estate Research Corporation's Economic and Financial Feasibility Models for New Community Development, 1971 (ref. no. 21-110). A discussion of the advantages of alternative land planning techniques is presented in Whyte's Cluster Development, 1964 (ref. no. 02-049).

Consideration of the process of conversion of land from rural to urban uses, and illustrating the changes in land use with development are Clawson's Suburban Land Conversion in the United States, 1972 (ref. no. 01-027); Milgram's The City Expands: A Study of the Conversion of Land from Rural to Urban Use, 1967 (ref. no. 01-080); and the Department of Housing and Urban Development's Urban Growth and Land Development: The Land Conversion Process, 1972 (ref. no. 21-001).

B. Land Budgets

The most common process of change in land use through development involves a successive decrease in size of land parcels from agricultural uses of one hundred acres or more, to rural housing on multi-acre sites, to "estates" of more than one acre, to subdivisions with between two to five homes per acre, and finally through in-filling of passed-over parcels to higher density uses such as townhouses or apartments or to commerce and industry. This sequential process of increasing intensity is typical of all metropolitan areas in the United States.

As development occurs, there are typical allocations of land -- in terms of numbers and sizes of sites and proportion of use -- that are used as "rules of thumb" for determining land use. References which are particularly useful in providing standards for comparison of land uses and which are sources of typical land allocations include the following: American Public Health Association, Planning the Neighborhood, 1960 (ref. no. 01-006); Chapin, Urban Land Use Planning 1965 (ref. no. 01-024); De Chiara and Koppelman, Planning Design Criteria, 1969 (ref. no. 21-034); Lynch, Site Planning, 1969 (ref. no. 21-083); and Urban Land Institute, Community Builders Handbook, 1968 (ref. no. 21-088). Although such standards exist, they may be subject to some latitude in interpretation. That is, the standards may reflect some average of land uses that can be found in a variety of areas, and thus will approximate actual conditions.

On the other hand, standards may reflect the ideal situation and may describe conditions considerably more generous than would be observed in actuality.

Whether the process of development is the usual disjointed incrementalism of urban sprawl or comprehensively planned and centrally implemented, and whether design standards are conspicuously adhered to during development or not, the net result over a large area, such as a county, and over a period of years seems to be similar proportions of land use. Over a smaller area, however, varying development patterns from the conventional lot-by-lot subdivision platting to clustering housing can result in significant differences in land uses. The total amount of residential land needed to accommodate a given number of dwelling units is reduced by clustering, and the land saved can be devoted to common open space and for other purposes.

In suburban areas, which have been developed largely over the past fifteen to twenty years, the following approximate proportions of land use -- exclusive of agricultural and undeveloped acreages -- may be found:

Land Use	Percent
Residential	
Single-Family	40%
Multi-Family	5
Commercial	3
Industrial	6
Open Space/Recreation	15
Schools	5
Institutional	1
Rights-of-way	15
Vacant or Other	10
Total	100%

Source: Real Estate Research Corporation.

Sources which present analysis of land uses in urban areas, and which confirm the typical allocations of land cited, are Bartholomew's Land Uses in American Cities, 1955 (ref. no. 01-155) and Niedercorn and Hearle's Recent Land-Use Trends in Forty-Eight Large American Cities, 1963 (ref. no. 01-087). Chapin's Urban Land Use Planning, 1965 (ref. no. 01-024) not only analyzes land allocations in urban areas, but also outlines methodologies for conducting land use analysis.

Literature Review

1. Residential

Units per net residential acre typically range as follows:

Housing Type	Units per Acre
Single-family, detached	1 - 5
Single-family, attached	3 - 7
Townhouses	6 - 12
Walk-up apartments	10 - 20
High-rise apartments	18 - 50

Source: Real Estate Research Corporation.

2. Commercial, Industrial and Institutional

Land devoted to commerce and industry varies widely in small areas compared to the averages shown. However, on a wide-area basis the ranges tend to be two to five percent for commercial purposes and four to ten percent for industry. Institutional uses such as churches and lodges in aggregate, and exclusive of schools, occupy less than two percent of the land in most suburban areas.

3. Open Space/Recreation

The total amount of land devoted to open space and recreation is more related to government foresight and planning, wealth, and natural features of an area than it is to differences in densities and/or development patterns. Nevertheless, relatively more land is devoted to commonly-shared open space and recreation as one progresses from small single-family developments to larger subdivisions, to planned unit developments, and then to totally planned communities. It has been pointed out, however, that the larger proportions of shared open space and recreation found in more planned communities are somewhat offset by extensive private yard space in residential areas of large lot sizes.

Because of the importance of open space to the whole concept of planned communities, the literature contains much information on open space land allocations. These data are not so readily available for conventional suburban developments.

General "rule of the thumb" standards for provision of open space acreage and recreation facilities are available, however, These standards are offered in general reference works such as ASPO's Standards for Outdoor Recreation Areas, 1965 (ref. no. 02-001), the Department of Interior's Outdoor Recreation Space Standards, 1967 (ref. no. 02-042), and regional planning agency reports. The use of open space planning principles at the regional or metropolitan level is shown in Happiness is a Green Place, 1972 (ref. no. 02-027). The impacts of greater open space conservation in new land developments are suggested in Open Space and the Urban Growth Process, 1969 (ref. no. 02-036) and Open Space vs. Development: Foothills Environmental Design Study, 1971 (ref. no. 02-023).

4. Schools

School sites are more a function of number of students than type of development -- although the number and size of sites might theoretically be expected to decrease as density increases -- because student enrollment would be less per dwelling unit, more students would be able to walk to school due to shorter distances, and land prices would be higher. Land use requirements for schools are found in the Council of Educational Facilities Planners' Guide for Planning Educational Facilities, 1972 (ref. no. 03-021).

5. Rights-of-Way

Rights-of-way for street, highways, utilities and railways range from twelve to twenty percent of total land use. Pattern and intensity of development as well as the land formations and quality of planning all affect the quantity and distribution of rights-of-way.

Two references for right-of-way design standards, as well as other design standards, are the Urban Land Institute's Community Builders Handbook, 1968 (ref. no. 21-088) and De Chiara and Koppelman's Planning Design Criteria, 1969 (ref. no. 21-034). Additional information on road construction standards can be found in A Survey of Urban Arterial Design Standards, 1969 (ref. no. 13-007), Highway Capacity Manual, 1965 (ref. no. 13-092), and Traffic Engineering Handbook, 1965 (ref. no. 13-093). Parking space requirements associated with various land uses are found in Zoning, Parking and Traffic, 1972 (ref. no. 13-091).

6. Vacant Land

The relative proportion of vacant land available for development tends to be less with increases in either the degree of planning or density. However, there are exceptions to this when a large tract is developed over many years, such as a new community. The fragmented nature of urban sprawl ususally features development occurring on a patchwork basis, with initially passed-over lands later filled in with more intensive uses.

While approximately five to twenty percent of suburban land prepared for development is vacant, much more of most suburban areas remains in agriculture or is unused -- more than one-half in many instances.

C. Land Prices

Suburban lands are priced according to their use or income potential. No site can have an actual value which is greater than that yielded by the use that can be made of the property -- that is, land values are not intrinsic, but are determined by the market place. The overall pattern of land prices is roughly similar from metropolitan area to metropolitan area. Key determinants of value are location, zoning and services. While higher densities do result in lower land cost per housing unit, on an acreage basis typical prices increase with the number of units permitted. Suburban fringe sites have the following approximate ranges of value:

Land Use		Value per Acre: Unimproved Land	Value per Acre: Improved Land
Residential (Dwelling Units per Acre)			
Single-family	(3)	$ 5,000-$ 15,000	$15,000-$ 60,000
Townhouses	(10)	$10,000-$ 20,000	$20,000-$ 60,000
Walk-up apartments	(15)	$10,000-$ 30,000	$30,000-$ 60,000
Mid-rise apartments	(30)	$20,000-$ 45,000	$45,000-$ 90,000
Commercial			
Shopping		$20,000-$ 30,000	$30,000-$100,000
Office		$20,000-$ 40,000	$[illegible]0,000-$125,000
Hotel-Motel		$30,000-$ 75,000	$50,000-$150,000
Gasoline Stations		$50,000-$100,000	$75,000-$200,000
Industrial		$ 5,000-$ 15,000	$15,000-$ 75,000

Source: Real Estate Research Corporation.

These general ranges encompass most active suburban fringe circumstances. Some unusual locations have either lower or higher prices. Unimproved land is that without roads, utilities or rough grading; improved land has full facilities and services throughout the site. These values were derived from a recent study by Real Estate Research Corporation for the Department of Housing and Urban Development, Historical Analysis of Unit Land Prices, 1973 (ref. no. 01-153).

Other useful studies regarding urban fringe land prices include: Milgram's U.S. Land Prices -- Directions and Dynamics, 1968 (ref. no. 01-081); Schmid's Converting Land from Rural to Urban Uses, 1968 (ref. no. 01-110); and Coughlin and Fritz's Land Values and Environmental Characteristics in the Rural-Urban Fringe, 1971 (ref. no. 22-014); the latter work attempts to define a statistical model which relates land value to environmental factors.

IV. RESIDENTIAL AND COMMERCIAL COSTS

A. Residential

The costs of constructing residential dwelling units do not vary directly with alternative development patterns, but do vary with type of housing and density of development. Except for economies of scale which might be found in large scale construction projects, the construction of the same housing unit in a planned or sprawl community may be assumed not to differ. Development at higher densities -- high-rise apartments as opposed to single-family homes -- will lower unit costs of housing, but this savings may be somewhat offset by the necessity for more expensive building materials and greater amenities, such as elevators or central air conditioning, which add to unit costs. Moreover, the primary reason that higher density residential costs are less than lower density is the size of individual units -- which, on the average include only one-half as many square feet of living area in high-rise apartments as in single-family detached structures. Also, garages and carports are more commonly found in single-family developments than in multi-family projects.

Design considerations for various housing types at given densities and with given structual characteristics and amenities may be found in the Uniform Building Code, 1967 (ref. no. 01-055) and the U.S. Bureau of Census' Construction Reports C-25: Characteristics of New One-Family Homes (ref. no. 01-152), as well as Lynch's Site Planning, 1969 (ref. no. 21-083) and the Urban Land Institute's Community Builders Handbook, 1968 (ref. no. 21-088). Standards and costs of construction may be derived from Boeckh's Building Cost Calculator and Valuation Guide, 1973 (ref. no. 01-040), Marshall Valuation Service, 1973 (ref. no. 01-072), and the Urban Land Institute's Project Reference File, current (ref. no. 01-139). A thorough analysis of construction and on-going costs of residential housing is presented in Eave's How the Many Costs of Housing Fit Together, 1969 (ref. no. 01-033). In multi-family developments the costs of drives, parking areas and utility lines within the development become part of residential costs paid by the developer and passed to the occupants in rental costs. On the other hand, in single-family subdivisions these costs are allocated to streets and utilities with part of the costs paid by local government.

There are substantial variations in residential costs from region to region related to climates, building costs, preferences, and other regional differences.

B. Commercial

The costs of construction and operation of retail shopping areas are fairly well documented, although data seem to be more available for shopping centers than for commercial strips. It is possible to obtain data on strip arrangements by agglomerating information on individual retail establishments, however.

A basic source of cost and typical configuration data for shopping centers is the Urban Land Institute's Dollars and Cents of Shopping Centers, 1972 (ref. no. 08-015), which presents information on capital and operating budgets by size of center and mix of stores. Other standards and cost information are found in the Urban Land Institute's Community Builders Handbook, 1968 (ref. no. 21-088) and Project Reference File, current (ref. no. 01-139). Patterns of shopping areas are outlined in De Chiara and Koppelman's Planning Design Criteria, 1969 (ref. no. 21-034). Cost data may be derived from the Marshall Valuation Service, 1973 (ref. no. 01-072) and Means' Building Construction Cost Data, 1973 (ref. no. 09-013).

While automobile circulation and parking (to some extent) make use of public streets in commercial strip developments, in planned shopping centers much more of this is handled internally at the expense of the shopping center. Similar incidence of costs apply to utilities.

V. TRANSPORTATION AND UTILITY COSTS

The networks serving urban development include: transportation; public and private utilities, including sanitary sewerage, water, natural gas, electricity, and telephone; and storm sewerage.

A. Transportation

Design standards and cost data for streets and roads, as well as transportation systems, are better and more readily available than for other infrastructure elements. This availability of data is expected since transportation is a major industry; roads and automobiles have fostered suburbanization as much or more than anything else; ten to thirty percent of typical household budgets go for transportation; and a large share of public works expenditures is devoted to streets and highways.

Likewise, as regards development, transportation has significant impacts. There has been a great deal of discussion of the fact that while transportation serves development, it also induces it, so that the network of highways and mass transportation in a metropolitan area substantially influences the direction, pattern, pace, and character of development. Further, vehicle use is one of the major sources of air pollutants in metropolitan areas. And finally, virtually every new urban highway has become congested within a few years of opening, even in areas that were initially sparsely developed. Congestion is especially acute around large industrial parks, near regional shopping centers, on major commercial strips, near high schools and colleges, and approaching transit stops. Since most apartment developments are near such concentrations, they suffer congestion out of proportion to that which they contribute.

There is currently interest in alternatives to private automobile use. Mass transit is more effective where there are either intensive clusters or corridors of population and only a few economic focal points. Since only seven percent of suburbanites commute to work by mass transit, according to the 1970 Census, the automobile has been influencing our metropolitan development patterns much more than mass transit, although this is less true in large cities such as Chicago or New York; also, new transit systems in Washington, D.C. and San Francisco indicate some shifting emphasis.

It is diffuclt to differentiate transportation costs by housing types and development patterns. In addition to numerous metropolitan transportation studies which have addressed this subject -- such as the Chicago Area Transportation Study -- other studies have suggested transportation planning criteria for new communities. Among these are "Transportation Inputs in New Town Planning," 1969 (ref. no. 13-002); Columbia Transit Program, 1970 (ref. no. 13-017); "Transportation Planning for New Towns," 1969 (ref. no. 13-056); and Transportation Requirements and Effects of New Communities, 1968 (ref. no. 13-061).

While miles of right-of-way should be less (for a given population) as densities increase, more lanes and higher traffic regulation standards can become necessary. Number and distance of trips should be less as densities increase, because more attractions are within walking distance and mass transit is more likely to be feasible. While both logic and available data support these points, the fact that different kinds of people tend to dominate each of the various types of development clouds the issue. An analysis of direct interest is Goldberg and Kriesel's "Urban Form and the Allocation of Land to Streets," 1971 (ref. no. 13-040), which discusses the effect of suburban sprawl development patterns on required road lengths. The effect of density on road lengths has been considered in The Effects of Large Lot Size on Residential Development, 1958 (ref. no. 01-137); Municipal Costs and Revenues Resulting from Community Growth, 1957 (ref. no. 06-022); and New Engineering Concepts in Community Development, 1967 (ref. no. 09-012). The effect of development patterns, such as clustering, on road lengths is shown in Innovations vs. Traditions in Community Development, 1963 (ref. no. 01-138) and Land Planning: Better Housing Environments, 1970 (ref. no. 01-134).

Both capital and operating costs of streets and highways increase with extreme site conditions (topography, vegetation, water level, subsurface) and colder climates. Road maintenance costs are often difficult to disaggregate from other on-going public costs due to municipal and county budget practices. Costs show great variation due to the quality of maintenance and repair services and the range of services offered.

B. Utilities

Utility systems, in general, are comprised of a supply source and/or treatment plant, transmission lines and a distribution or collection network. The supply source and treatment plant are largely insensitive to housing types or development patterns, but are very sensitive to population size and scale of economic activity. Transmission lines are usually regional or metropolitan-wide in scope.

As such, they are at least generally sensitive to the overall pattern and intensity of development, but the natural geography of the area is at least as important. On the other hand, the distribution or collection networks are mainly determined by development characteristics and, to a lesser degree, site conditions. Consumption of water and power resources may vary significantly by housing type to account for differences in lawn areas, heat loss, etc.

The lengths of utility lines approach street lengths, typically ten to fiften percent less. The size of lines depends on overall size and configuration of the service area, intensity of development and topography. Cost data for both capital and operating purposes for water and sewage treatment are available from utility companies and new community engineering studies on the basis of line length and volume or per capita. However, cost information by housing type or patterns is not readily available, although it can be determined by costing out specific development patterns. Capital cost estimates for construction of electric, gas, and telephone utilities are more difficult to obtain than for other infrastructure items. This occurs because in many instances, developers do not pay actual costs for installation of these services in residential, but rather pay a fixed fee for extension of the services to the developing area.

A major element of utility costs is the connection to each residential building. In the case of single-family buildings, the lines extend from the right-of-way (or rear lot line) to each house. Electric, gas and water service is usually metered, with sanitary sewage charges either related to water consumption or a flat rate. With multi-family construction, the lines connect to the main lines with only one or a few connections. Nearly all multi-family developments have separate meters for each unit, although water service may have only one meter per building or even for the entire development. Higher density, large-building developments include within their confines substantial shares of the utility distribution system which are external to single-family and smaller apartment developments.

With improvements in cables, electric house connections increasingly are being placed underground, so that the installation and maintenance cost of underground service now is little or no more than overhead service, even in severe climates.

Upon installation the builder pays connection charges for each utility service; costs are passed on to the purchaser (included in the property price). Water and sanitary sewer distribution systems typically are installed by local government and charged to the developer-builder-owner on a special assessment basis (with the public absorbing some of the cost). Operating and maintenance costs usually are paid by the consumer through user charges or through tax revenues.

Electric, gas and telephone lines vary little in terms of capital or operating costs with differences in natural features of the site or the region -- except at the extremes. Very steep slopes or rock subsurface can add greatly to installation costs; severe freezing conditions and ice storms can raise havoc with operating and maintenance costs. The gravity flow systems -- i.e., water, sanitary sewer and storm sewer -- are very sensitive to topography, subsurface conditions and cold, wet winters.

Information on utility capital and operating costs that may be of most convenient use to local government officials includes the following:

1. Sanitary Sewerage

A general discussion of the effect of housing development on water and sewerage systems and their costs is Urban Systems Research and Engineering's The Relationship Between Housing and Water Resources Planning and Management, 1972 (ref. no. 11-026). A basic engineering design reference for sanitary sewerage is Seelye's Data Book for Civil Engineers -- Design, 1968 (ref. no. 09-015); Means' Building Construction Cost Data, current (ref. no. 09-013) provides cost data; these sources do not relate to development patterns, however. More current estimates that relate to new communities are the folowing engineering studies: VTN Engineers, Technical Study for New Town Developments for Rancho San Diego, 1972 (ref. no. 11-027); Wiedeman and Singleton Engineers, Water, Sewerage, and Storm Drainage, 1972 (ref. no. 11-030) for the Shenandoah New Community; Madison-Madison International, Adequacy and Cost Analysis of New Community Infrastructures, 1973 (ref. no. 09-028); and Gulf Union Corporation, Engineering Criteria and Construction Cost Development: Nouville New Community, 1973 (ref. no. 13-090).

Useful data sources also include the following: Municipal Waste Facilities: 1968 Statistical Summary, 1970 (ref. no. 09-020) which provides data on sewage treatment by size of community and type of treatment; and U. S. Environmental Protection Agency, Estimating Costs and Manpower Requirements for Conventional Wastewater Treatment Facilities, 1971 (ref. no. 09-022) which provides operating and capital costs by plant capacity, ranging from one million to 100 million gallons per day. Cost data for treatment required by various density levels and types of treatment are found in U. S. Environmental Protection Agency, Cost to the Consumer for Collection and Treatment of Wastewater, 1970 (ref. no. 09-021). A general overview and reference work is Downing, The Economics of Urban Sewage Disposal, 1969 (ref. no. 09-002), which calculates costs of house connectors, mains, and treatment plants by density and distance to treatment plants.

2. Water

Design criteria for water supply systems are found in Seelye's Data Book for Civil Engineers -- Design, 1968 (ref. no. 09-015) and the Fire Protection Handbook, 1969 (ref. no. 05-016). Infrastructure cost estimates for various piping materials are found in Building Construction Cost Data, current (ref. no. 09-013). Costs for conveyance and treatment of water are estimated in Hirschliefer et al, Water Supply, 1960 (ref. no. 11-009). The previously cited new community engineering studies are also very useful.

A discussion of the relationship between size and volume of water systems and economic costs is presented in Grove, Economies of Scale in the Provision of Urban Public Services, 1967 (ref. no. 09-006) and Kain, Urban Form and the Costs of Urban Services, 1967 (ref. no. 09-008). The effects of residential growth on water supply are suggested in Gruen and Gruen's The Impacts of Growth, 1972 (ref. no. 11-005).

3. Electricity, Telephone and Gas

The Federal Power Commission is the best source of information regarding gas and electric utilities. The 1970 National Power Survey, 1971 (ref. no. 12-008) indicates the costs associated with electric power production, transmission, and distribution. The differences among development patterns or housing types in distribution systems are not considered, however. Especially useful information is presented on system operating costs.

With regard to gas and telephone utilities, no similar nationwide cost averages exist. Capital costs must be determined from utility company budgets, and operating costs estimated from monthly service charges.

Two sources of information on residential consumption of energy are Residential Energy Consumption, Single Family Residences, 1972 (ref. no. 14-009) and Residential Energy Consumption, Multi-Family Housing, 1972 (ref. no. 14-008). These two works summarize data on energy consumption per household, as well as how energy requirements vary with size of housing unit, type of housing, and varieties of household appliances.

C. Storm Sewerage

In many older communities, sanitary and storm sewerage systems are combined. At the same time that some of these systems are being separated -- at a cost of millions of dollars per community -- there is discussion that storm water should be treated along with sanitary sewage in order to recirculate water supplies and to help prevent flooding and erosion. In economic terms, storm water run-off is an externality which no one intentionally creates and which no one is willing to purchase. Accordingly, only general government can cope with it successfully in urban areas. In rural and sparsely developed urban areas, open ditches usually suffice in handling surface water. However, as development intensifies, more elaborate and expensive sewer systems are required. Improvements to retain water and control flooding increasingly are required as part of large land developments. While much of the storm drainage system is financed by general revenues, capital costs may be paid by developers and property owners on a special assessment basis.

Water run-off increases as density increases because of roof and pavement cover. However, soil erosion may actually be reduced with higher densities because of landscaping and artificial drainage ways. While systematic documentation is not available, from observation it seems that more intensive development often occurs in flood plains and on lands that had absorbed considerable surface water. This may be because higher densities can better afford to compensate for these conditions and in older suburban areas they may be the only large sites still undeveloped.

Aside from the results of development itself, both site conditions and climate help to determine storm sewerage needs. Problems are greater on steep slopes, in hollows, along rivers, where vegetation is sparse, where soils resist absorption, where unusually heavy rainstorms occur, and where temperatures cause ice and snow to accumulate then melt rapidly.

Local government policies and programs for improving storm drainage systems are surveyed in Urban Drainage Practices and Needs, 1965 (ref. no. 10-001). Systems design standards are suggested in Data Book for Civil Engineers -- Design, 1968 (ref. no. 09-015) and Storm Sewer Design, 1972 (ref. no. 10-004). Information on typical practice can also be found in the new community studies cited previously.

VI. FACILITY AND SERVICE COSTS

Complementing the network infrastructure elements discussed above are the public facilities and services which are more personal and visible than the networks (except for transportation). These include: recreation facilities and services; libraries; schools; health care; police and fire protection; government regulation and administration; mail delivery; and solid waste collection and disposal.

A. Open Space, Recreation and Libraries

It may seem that differences in housing types and development patterns would not have significant cost implications for recreational and cultural facilities, since it might be assumed that requirements of individuals do not vary. However, on closer examination, this is not the case.

In the case of such cultural services as a library, there may not be variations among development types, but more libraries might be necessary to serve lower density areas conveniently -- at greater cost and perhaps with smaller selection and ancillary services than possible with larger facilities. As regards recreation facilities and open space allotments, in very general terms, higher density, more compact developments tend to include smaller, more intensive, more elaborate facilities and service programs, whereas lower density, loosely knit developments tend to larger, less improved, less formal open space and recreation facilities, with less common facilities and services. Intrinsic to these trade offs are preferences as to privacy and convenience.

In single-family developments, local government typically provides and maintains playfields, parks, swimming pools, tennis courts, gymnasiums, auditoriums, etc. In apartment projects with increased density and overall size, more amenities such as pools, recreation buildings, tennis courts, etc. are provided -- usually turned over to an owner-occupant association for operation and maintenance.

Assuming a certain population to be served, major open space, recreation and cultural facility and service standards, referred to in the chapter on land use above, should not vary significantly among development patterns. However, in practice, these standards are not as likely to be met in conventional sprawl situations as they are under unified planning and implementation. In the process of an area developing under sprawl, the passed over lands serve as open space and play areas. However, as the area matures, these sites are converted to housing, commerce or industry -- leaving the area without enough open space and recreation land and with no reasonable recourse.

Unusual site conditions can be an advantage to open space and recreation purposes. Steep slopes, wetland, flood plain, rock near the surface, forests and other features being less suitable for development may be less expensive to purchase for open space purposes than more developable sites. Creating active playfields could be more expensive, however.

Climate differences only influence open space and recreation facilities to the extent that the types of use vary as the seasons are different, and do not significantly offset indoor facilities and services.

Capital costs and recreation facilities and equipment can be estimated using Building Construction Cost Data, 1973 (ref. no. 09-013). Operating expenditures can be estimated from data presented in the Municipal Yearbook, 1973 (ref. no. 06-021).

B. Schools

While suburban residents may pay more annually for either housing or transportation than they do to educate their children, the quality of schools ranks first among their interest and concerns in most opinion polls. Education does capture about two-thirds of the local government revenues in most suburbs.

School systems are quite similar throughout the U.S. While there is a trend toward larger, consolidated districts and although busing (both for integration and distance reasons) is a current topic, the neighborhood and community orientation of schools is still dominant.

Standards for school construction are keyed to service areas in terms of distance and potential enrollment. Primary (elementary) schools best serve 600 to 900 students within a radius of one-half miles. Junior high school standards indicate enrollments of 600 to 1,200 students within three-fourths mile of the school. Most general education high school standards specify 1,000 to 1,500 students within a one mile radius. Current school planning standards are found in Guide for Planning Educational Facilities, 1972 (ref. no. 03-021) and "Ideas From Award Winning Schools", 1973 (ref. no. 03-025).

Facility needs for schools in new towns are analyzed in Schools for New Towns, 1973 (ref. no. 21-152) and New Towns, New Schools, 1973 (ref. no. 21-151).

In lower density areas it is difficult to locate the schools such that the distance standards are met at optimal enrollments. Therefore, students are transported to school from the fringe areas of the district. Moreover, because of the fragmented governmental structure and the process of urban sprawl, school sites frequently are poorly located. When busing of students becomes necessary, its cost reduces the funds available for educational purposes.

Allowing for a constant population, school standards are easier to meet with increasing densities and more concentrated patterns of development. Also, more comprehensive planning and coordinated implementation should result in a better overall school system for the same cost or the same quality for less cost -- in other words, greater efficiency.

As developments increase in size, it is likely that the developer will provide the school site(s), pay a fee in lieu thereof (ususally offsetting initial school operating costs), or, in rare cases, actually build the school. Small developments have difficulty affording any of this.

Excellent data on school construction and operating cost are readily available on a per student basis. Moreover, there is good information on the numbers of school children likely to be living in various types of housing (generally, 1.3 in single-family; 1.1 in walk-up apartments and less than 0.3 in high-rises). Location, price, size, design, marketing, housing options and preference factors all exert considerable influence on actual experiences as to the number of children residing in multi-family developments.

Major studies suggesting the impact of development on school systems are Sternlieb, The Garden Apartment Development, 1964 (ref. no. 03-016), ASPO, School Enrollment by Housing Type, 1966 (ref. no. 03-010), and Barton-Aschman, Barrington, Illinois Cost Revenue Analysis of Land Use Alternatives, 1970 (ref. no. 03-001) which gives both school enrollment figures as well as costs of education. Burchell's PUD: New Communities American Style, 1972 (ref. no. 21-019) also suggests methods of estimating school loads by housing type.

Housing types are evaluated by local officials primarily in terms of demands on the school system and taxes generated; the many other criteria are accorded much less importance in initial review and negotiation meetings. Because of the seemingly inherent relationships of housing types and occupant characteristics, it is difficult to assess the sensitivity of school cost aside from these population differences. However, given the same students to educate, higher densities probably would be somewhat less costly because of more compact service areas.

Site features, such as steep slopes and poor soil conditions, increase the cost of building schools and make it more difficult to provide suitable play areas. Cost differences related to climate have to do with heating and air conditioning as well as keeping the school clean during inclement weather.

Data are available for construction of schools in numerous sources. School Management presents cost data periodically in its "Cost of Building Index," 1972 (ref. no. 03-023). A basic source of construction cost estimation is Means' Building Construction Cost Data, 1973 (ref. no. 09-013). Possible savings in construction costs of schools by use of shared and flexible facilities are discussed in Open Space Schools, 1971 (ref. no. 03-020). A source of data for operating and capital costs is U.S. Department of HEW's Statistics of Local Public School Systems: Finances, 1971 (ref. no. 03-019). This work provides national summary statistics, as well as data for specific localities; school systems are arranged by size of enrollment for analysis, and data are presented for suburban districts. Other operating cost data are found in "How to Use the New Cost of Education Index," 1973 (ref. no. 03-023).

C. Health Care

The likely differences in health care costs are: the possibility that diseases might spread more readily with higher densities; numbers and types of accidents during play, doing housework and in traffic; and the distances to clinics and hospitals. These differences may or may not be important. However, very little is available in documented form which relates these factors to variations in either housing types or development patterns. Further, differences in site conditions, climate and other external factors are relatively insignificant in determining costs.

For "rule of thumb" standards for estimating hospital bed needs in long- and short-term care facilities, two sources are particularly useful: Space Criteria for Hospital Evaluation, 1965 (ref. no. 04-015) and "How to Measure Metropolitan Bed Needs", 1964 (ref. no. 04-005). Capital costs of hospital construction are available in Means' Building Construction Cost Data, 1973 (09-013). Operating costs for hospitals, summarized nation-wide by type and size of facility, are presented in the American Hospital Association's annual statistical summary in its Journal, (ref. no. 04-001).

D. Police and Fire Protection

After schools, police and fire protection collectively account for the largest share of local government operating budgets in most communities. As urbanization takes place, these services are upgraded from relying on the county sheriff and volunteer fire departments to having large, full-time, highly trained, well-equipped police and fire departments.

It would appear that the more intensively a community develops, the more likely (and rapidly) it is to create expensive full-time departments. This observation notwithstanding, there is little information available on the costs of either police or fire protection according to differences in development. Virtually all data pertain to total communities or service districts. Even per capita and per housing unit data are suspect because they ususally fail to account for commercial and industrial areas.

Recent experience of many communities implies that relatively more police and fire calls are made on apartments, but this may have to do more with the characteristics of the occupants than with the housing per se. Fire safety inspections typically need to be made more thoroughly and frequently in apartment developments -- especially those with common corridors and elevators. The greater travel distances of less dense communities necessitate more miles (and perhaps hours) of police patrol to provide a given level of coverage, but it is uncertain whether as much coverage is necessary. Time-distance factors tend to mean more fire stations to serve sparsely developed areas, but more intensive development may entail more expensive equipment, as well as full-time personnel as indicated above.

Local expenditures for police and fire services, as well as information on the range of services offered and the levels of personnel training, are available from professional organizations and are published annually by the International City Management Association in its Municipal Yearbook, annual (ref. no. 06-021). Such data are available for specific communities and by size of community.

Standards for fire station location are based on travel distances to stations and according to the type of district to be protected (residential, commercial, etc.). The standard reference volume on fire protection system design is Fire Protection Handbook, 1969 (ref. no. 05-016). Police station standards are found in Police Stations: Planning and Specifications, 1954 (05-018). The Fairfax County, Virginia study, Five Year Countywide Development Program, 1972 (ref. no. 03-009), details fire and police facility and service standards used to determine growth-related needs. Consideration is given to facility size, location, equipment, personnel requirements, and performance standards for both police and fire protection services. Additional service standards have been published periodically by the National Board of Fire Underwriters (ref. nos. 05-004, 05-005, 05-006).

A number of studies have considered the question of economies of scale in the provision of public safety services, but they are rather dated and show conflicting conclusions regarding fire protection and no economies of scale for police services. Economies of scale are discussed in Grove's, Economies of Scale in the Provision of Urban Public Services, 1967 (ref. no. 09-006) and Kain's Urban Forms and the Costs of Urban Services, 1967 (ref. no. 09-008).

Another study by English, The Impact of Land Use Patterns on Public Service Expenditures, 1967 (ref. no. 06-013) suggests that the higher densities resulting from sophisticated mixed-use planning raises public safety costs due to the need for more expensive fire fighting equipment (i.e., hook and ladder trucks for high-rise buildings) and greater traffic control responsibilities for police. However, the number of fire stations needed may be less in more compact developments. In PUD: A Better Way for The Suburbs, 1971 (ref. no. 21-068), it is suggested that higher densities (and less road length) will lower the costs of regular police patroling.

None of the sources for standards and "hard" cost data are related to the degree of planning exercised in community development. Variations in cost will also occur due to taxpayer preferences for different service levels and their ability to pay. Such variations must also be taken into account.

Site variations at the extremes can make it more difficult, hence expensive, to provide both police and fire protection. While climate does not affect police expenditures greatly, dry weather increases fire fighting costs.

Police and fire protection costs are financed by local government general funds (primarily property taxes) in most communities and counties. Sometimes there is a special property tax levy. Volunteer fire departments are funded by donations, special projects and, sometimes, assessments to property owners requiring assistance.

E. Government Regulation and Administration

The demands upon local government during the process of initial planning, zoning, regulating and monitoring construction vary greatly between a single-family subdivision and a large planned unit development. Although one form of development may be as demanding as the other for the same number of dwelling units, the process of review for the planned unit development may be more thorough since the issues are broader, more intense, and typically are of greater interest to all participants. Thus, it may be with larger projects more effort is required for both petitioner and local government.

Beyond the initial planning and review, it may be that larger residential complexes, particulary high-rise apartments and condominiums, make less demands on general government because the occupants act collectively through their management or association in their dealings with government; in this sense, they tend to act as their own mini-government.

The cost of general government is borne by residents -- principally through property taxes and municipal shares of state income and sales taxes. Annexation, zoning and building permit fees largely pay for the cost of development regulation.

General government costs are not significantly influenced by variations in site conditions, climate or other environmental factors.

The major sources of information regarding costs of general government services resulting from new development are municipal cost/revenue or fiscal impact studies prepared in connection with specific development proposals. These studies also consider the value of tax revenues to be raised by the proposed developments, and compare the costs and revenues to determine net positive or negative impacts. These studies cover projects ranging in scale from small housing developments to major shopping centers and complete new communities, and analyze the impacts of a variety of housing types. Such studies were summarized under General Considerations above.

With regard to existing fringe communities, actual budget data are available; however, such data are not often organized so as to allow simple disaggregation of costs for general administration exclusive of functions such as public works, public health, safety, etc. Cost estimates offered in case studies relate to particular packages of services and the quality of services offered in given communities. It is therefore difficult to pinpoint with any degree of precision an "average" cost of providing general government services. Capital costs associated with general administration (i.e., construction of city halls) are also difficult to determine for fringe communities. The data published annually by the International City Management Association in the Municipal Year Book, annual (ref. no. 06-021) is of value. It offers information for specific municipalities and by city size regarding form of government, scope of planning services, and their costs.

F. Mail Delivery

The cost of delivering mail decreases as density increases in that driving and walking distances are reduced substantially. Compared to conventional single-family subdivisions, a high-rise apartment with fifty or more boxes in one location reduces the delivery cost to a small fraction. Moreover, a more compact development pattern reduces the travel time between housing areas and cuts down on the need to use vehicles for house to house delivery.

However, a large part of mail service cost is in handling and transportation from origin to destination post office. Housing types and development patterns affect these aspects of postal service little, if at all. It is possible that with higher density and better planning and coordination, there could be fewer post offices.

Guidelines for developing postal services in new communities to provide efficient and economical service are presented in U.S. Post Office, New Towns and the U.S. Postal Service, 1973 (ref. no. 21-153).

G. Solid Waste Collection and Disposal

As our large urban areas grow and intensify, solid waste disposal becomes more difficult and costly. The subject can best be understood if it is divided into four components: generation, collection, transportation, and disposal.

The old appliances, paper, cans, bottles, and garbage generated by a given population would not vary much with housing or development types. However, old lumber, other scrap building materials, brush, grass clippings, leaves, garden-weeds, etc. relate directly to housing types; that is, lower densities generate more. The exact differences in solid waste generation as densities change are difficult to calculate, however, and are not well documented.

The cost of trash collection decreases as density increases because of shorter travel distances (driving and walking) and the ability to use larger, more mechanized equipment. Since back-door trash pick-up in single-family neighborhoods is being replaced by curbside pick-up in many communities, collection costs may decrease also. The literature does not directly deal with the effects of density and development patterns on collection costs, however.

Literature Review

Most trash is picked up weekly or semi-weekly (with irregular special pick-ups) and placed in trucks with mechanical compacters. It is then transported to the disposal site -- usually in the same truck, but sometimes it is first consolidated into larger trucks (or even rail cars and barges). Once the trash is picked up at the residences, type of housing ceases to be a consideration, but the overall development pattern of [illegible]rea continues to be important.

The time distance of the haul to the disposal site is growing as sites are located farther away and traffic congestion slows the trucks. Since it is undesirable to live near a disposal site, there is considerable opposition to having them located near developed areas. Sparsely populated areas usually have some places that are suitable, but as the area fills in, these possibilities disappear. Proper provision of disposal sites is a matter of county and regional concern -- it typically is not handled well by suburban communities.

Trash disposal has improved from the former dumps to sanitary landfill and incineration. Sanitary landfill ususally requires large sites and considerable labor to cover layers of trash with dirt. When handled properly, such projects need not be a nuisance and upon completion the site can be used for other purposes; Du Page County, Illinois built a ski hill in a Forest Preserve, for example. Incineration (or other forms of quick reduction) requires less land but a greater investment and high operating cost. However, as suburbs develop and landfill sites get farther away, suburban incinerators may increase.

The collection and disposition of trash in suburban fringe communities is most commonly handled by private scavenger under contract or franchise from the county or municipality. Usually, the rate structure is set by ordinance, but households pay the scavenger directly (sometimes the local government pays part). In apartment developments typically the payments are made by the management (and passed on in rent) or by the owners association through maintenance fees. Some suburban local governments provide trash disposal services as a municipal function paid from general revenues and/or service charges.

As a direct municipal service, solid waste management literature is well documented with cost and other quantified data. Costs of alternative collection systems (capital and operating) with emphasis on new technologies are discussed in the U.S. Environmental Protection Agency's Solid Waste Management in Residential Complexes, 1971 (ref. no. 07-034). Costs of alternative regional disposal systems are presented in the U.S. Environmental Protection Agency Bureau of Solid Waste Management's Solid Waste Disposal Study: Genessee County, Michigan, 1969 (ref. no. 07-029) and A Systems Study of Solid Waste Management in the Fresno Area, 1969 (ref. no. 07-030).

Requirements and costs for operating sanitary landfills are presented in Sanitary Landfill Facts, 1970 (ref. no. 07-025). A comprehensive study of community refuse collection systems, their capital and manpower requirements, and operating procedures is found in Refuse Collection Practice, 1965 (ref. no. 07-003).

Collection service charges for various municipalities are shown in "Waste Collection Services: A Survey of Costs and Pricing", in Mushkin, Public Prices for Public Products, 1972 (ref. no. 07-007). The problems involved in providing adequate disposal sites in suburban fringe areas are discussed in Solid Waste Practices in Berkshire County, 1969 (ref. no. 07-023).

VII. ENVIRONMENTAL EFFECTS

A. Water and Energy Consumption

Two resources which have been taken for granted, but which are in limited supply and which must be conserved, are water and energy. Since requirements for water and energy will vary among housing types and development patterns, considerations of resource use become of particular importance in development.

Implications of water consumption on the national level are discussed in Ridker's "Future Water Needs and Supplies, With a Note on Land Use", 1972 (ref. no. 11-016). The effects of water supply as an inducer or inhibiter of growth, as well as area-wide consideration of water resource use, are discussed in Savini and Kammerer's Urban Growth and the Water Regimen, 1961 (ref. no. 11-018); Urban Systems Research and Engineering's Relationship Between Housing and Water Resources Planning and Management, 1972 (ref. no. 11-026); and The Christina Basin: The Protection of Water Resources as a Basis for Planning in Developing Areas, 1972 (ref. no. 11-029). Domestic consumption factors are analyzed in Characteristics of Household Water Consumption in Three New Hampshire Communities, 1970 (ref. no. 11-002); Hittman Associates' Price, Demand, Cost, and Revenue in Urban Water Utilities, 1970 (ref. no. 11-010); and Linaweaver et al's Study of Residential Water Use, 1967 (ref. no. 11-014). Design considerations and consumption factors are referenced in Water Supply and Waste Disposal, 1960 (ref. no. 11-008).

Recent developments have caused energy conservation to become important -- and certainly of public concern -- from both an economical and an environmental standpoint: an inexpensive and abundant supply of energy for transportation, manufacturing, heating and cooling has strongly influenced the economic growth of our society, and it has been stated that "energy is the real currency in human societies as well as ecosystems." (Odum, Environment, Power and Society, 1971 (ref. no. 14-011)). In addition, energy use and production are intimately connected with almost all forms of pollution, most particularly air and water degradation.

On a national level, total energy use was estimated at 62.4 quadrillion BTUs in 1968, of which household, commercial and transportation uses consumed almost 50 percent.

Literature Review

Household energy use has been studied in some detail; information on the power demands of different residential structures and on ways that power can be conserved are Hittman Associates, Residential Energy Consumption, 1972, (ref. nos. 14-008 and 14-009), and National Mineral Wool Insulation Association, Impact of Improved Thermal Performance in Conserving Energy, 1972 (ref. no. 14-010). These studies have shown significant variation in energy consumption by housing type, with single-family homes being the greatest users of power. High quality construction standards can reduce energy demand for heating and cooling regardless of housing type, however. It has been estimated in Stein, "A Matter of Design", 1972 (ref. no. 14-016) that changes in design of buildings could reduce by at least twenty-five percent the current requirements for electricty in construction, maintenance and demolition. This reference includes recommendations for reductions in material quantity through more careful design, use of materials with lower energy cost (e.g., steel in lieu of aluminum), reduced lighting, heating and cooling levels. The estimates of energy use do not take account of more careful building design in relation to climate and sun angles, which, particularly in the case of small structures such as single-family houses, rowhouses, etc., can significantly alter their heating and cooling needs. Significant savings in energy consumption are also likely in planned communities utilizing total energy systems which recycle waste heat, as suggested in U.S. Department of Housing and Urban Development, Total Energy and Pneumatic Waste Collection Demonstrations, 1972 (ref. no. 07-028) and Ayres, An Integrated Utility System Concept, 1970 (ref. no. 12-002). Groups of apartment structures utilizing central heating sources will experience greater efficiency in energy use than single-family homes with individual heating units.

The source of energy, particularly for space heating, is important. An all electric solution to residential energy needs is very attractive to the builder (cheaper installation costs) and to the resident (minimum problems and no local air pollution), although high running costs are certainly a deterring factor to the consumer. The overall effect of all-electric construction on energy use (and, by inference, on air quality) is far less beneficial. Electricity generation and distribution results in a net fuel use efficiency of about 30 percent compared with almost 80 percent for natural gas or fuel oil, as noted in McGuinness, Mechanical and Electrical Equipment for Buildings, 1964 (ref. no. 14-019). Thus, although electrical energy is the most efficient source of heat for dwelling units, the lower efficiency of electric generating stations makes it significantly less efficient overall. The environmental implications of power generation on a wider scale than for individual dwelling units are discussed in the Council on Environmental Quality's Energy and the Environment: Electric Power, 1973 (ref. no. 14-020).

In the area of transportation, proposals for reductions in energy consumption aim at (a) improved energy/power ratio propulsion systems, (b) improved passenger mile/energy consumption ratios through wider use of public transit and (c) reduction in total passenger miles travelled through changes in planning.

The first alternative is primarily a technological one and beyond the concern of neighborhood and community planning, although it is conceivable that general planning decisions could influence the success or failure of a particular propulsion system.

The second area is potentially of much greater significance in terms of energy conservation. Grimmer and Luszczynski ("Lost Power", 1972 ref. no. 14-007) give the following comparative figures for passenger mile/fuel consumption of different forms of land transportation:

	Passenger Miles Per Gallon	BTU's Per Passenger Mile
Commuter Train (50% occupancy)	100	1,300
Subway Train (50% occupancy)	75	1,700
Bus (58% occupancy)	125	1,000
Auto (25% occupancy)	16 - 32	8,100 - 4,100

A shift in transit mode from private car to public transportation (either rail or bus) would therefore make a significant impact on power consumption. For example, a 15 percent shift from car travel to train and/or bus could result in a 13 percent reduction in total power consumption for transportation -- equivalent to about two percent of the total U.S. energy budget. Denser planned developments are better able to support public transportation systems that diffuse suburban areas, as suggested in the Tri-State Transportation Commission's Transit Supporting Densities, 1970 (ref. no. 13-072).

The third area of concern -- that of reducing auto travel through planning -- is of direct significance to land use planning choices, and while the effect of a single development in terms of reduced passenger miles travelled may be very small, the extrapolation of such effect on a national scale can be significant.

Auto travel may be reduced by fewer trips and/or shorter distances of travel. Differences in numbers of trips for different housing types, have been estimated in Voorhees, Reston Transportation Study, 1970 (ref. no. 19-011) and Lansing and Hendricks, Automobile Ownership and Residential Density, 1967 (ref. no. 23-011) among others. Different overall development patterns will also influence trip generation rates and distances, as suggested in Lansing et. al.'s Planned Residential Environments, 1970 (ref. no. 21-075). Easy accessibility to shops, school, church, etc., can be expected to have significant effects on local travel, while the planning of community-wide facilities and employment centers, close to residential areas, could drastically curb day to day commuting distances. Each one-mile per day reduction in average automobile use is equivalent to about three and one-half percent of the annual energy use.

At the decision-making level of development planning, choices can be made which affect energy use. These include:

1. Design of buildings to conserve energy through compact shape, correct orientation to maximize winter heat gain and summer cooling effects and adequate insulation.

2. Site planning to encourage maximum use of pedestrian and bicycle pathways, and to reduce road lengths so as to cut down travel mileage and street lighting costs.

3. Layout of neighborhoods to allow best potential for public transportation systems to essential services such as schools, local shops, medical and library services, etc., and to reduce the distance required to reach such facilities.

4. Provision of sufficient public facilities to reduce unnecessary duplication of energy expenditures in manufacture and maintenance for such items as swimming pools, washing machines, incinerators, gardening equipment and playgrounds.

5. Area wide planning to ensure that development occurs where it can be adequately serviced with a full range of energy sources and, as far as possible, public transit.

6. The design of solid waste handling systems so as to maximize the recycling of waste energy.

B. Water Pollution and Erosion

Water quality problems in urban and suburban ares stem from some or all of the following causes:

1. The lack of adequate sewage treatment in communities of all sizes and the continued reliance on septic tanks and cesspools in areas with inadequate ground absorption capacities.

2. The existence of combined sewer systems, in which storm drainage and sanitary sewage are carried in the same pipe and are routed through the same sewage treatment plant, often overtaxing the treatment capacity of the plant during storms.

3. The presence of polluting material (rubbish, oil, gasoline, rubber, salts, animal feces) on urban streets and pavements, most of which is washed into the storm sewer system by rainfall or street washing.

4. The transfer of topsoil from land exposed to erosion processes, particularly during construction.

5. The removal of polluting agents from the air by rainfall (principally nitrates and sulfates from combustion, which produce acidic water conditions, and heavy metal particles such as lead).

6. Leaching of pollutants from solid waste emplacements.

7. Construction over or adjacent to ground water recharge areas resulting in lowering of water table and loss of quality.

8. The transfer of fertilizers and pesticides from lawns and gardens, by rainfall.

The Environmental Protection Agency's Primer on Waste Water Treatment, 1971 (ref. no. 15-060), provides a good introduction to the general problem of water pollution, and sources such as the EPA's The Cost of Clean Water, 1971 (ref. nos. 09-023 and 09-024) provide information on the cost of treatment. Although essentially the same per capita amount of domestic sewage will be generated regardless of the development pattern, collection costs will be reduced in clustered and more dense developments, and treatment costs are lower with larger treatment plants. The cost of separating storm sewers from sanitary sewers is very high, according to the Council on Environmental Quality's annual report, Environmental Quality: 1971 (ref. no. 22-019), and every effort should be made to ensure that storm water is not allowed to enter sanitary sewers in new developments.

Literature Review

Several studies have investigated the problem of pollution from urban runoff, and have shown that during storm activity, street runoff can contribute as much pollutant load as the sanitary sewage effluent. A source of information regarding this aspect of pollution is the U.S. Department of Interior's Storm Water Pollution from Urban Land Activity, 1970 (ref. no. 15-049).

Although some efforts to correct this problem are being made, the outlook for control in many urban areas is likely to be concentrated on more effective street cleaning, littering legislation, and maintenance of catch basins as outlined in U.S. Department of the Interior's Water Pollution Aspects of Urban Runoff, 1969 (ref. no. 15-050). Outside the densely covered urban areas, however, there is the prospect for some form of storm runoff control. At Columbia, Maryland, a prototypical installation is being planned to separate and reuse storm runoff; this attempt by a "new town" to deal with runoff is reported in "Reusing Storm Runoff", Environmental Science and Technology, 1968 (ref. no. 15-014). Similar proposals are under consideration at other planned communities.

The effect of the development pattern on urban runoff depends primarily upon the amount of land surface that is covered with impermeable surface such as roads, roofs, driveways, etc. A more dense or more clustered development will typically require less impermeable surface per dwelling unit, but denser developments will have a larger proportion of the surface in the development paved. In planned developments there is often more opportunity to construct settling ponds and other structures that will prevent much of storm runoff pollution from entering the streams. However, non-clustered, single-family developments, particularly where the streets are constructed without concrete curbs and gutters, will often provide a greater likelihood that the storm runoff will infiltrate directly into the ground.

Another problem created by land development in regard to storm water runoff is that the increased runoff which the development causes often brings with it increased flooding in downstream areas. Both the covering of the land with impermeable surfaces such as paved areas and roofs, and the removal of natural vegetation speed up the flow of such runoff. The result is, generally, an increase in the quantity and in the rate of runoff entering the stream, which can combine to produce dramatic surges of water downstream where the channels are not capable of handling such flows. Combined with indiscriminate development in floodplain areas, this process produces extremely hazardous conditions in many parts of the country. These problems are discussed in Wallace, McHarg, Roberts, and Todd's, Maryland Chesapeake Bay Study, 1972 (ref. no. 15-056) and Guy and Ferguson's "Stream Sediment: An Environmental Problem", 1970 (ref. no. 18-003).

Another water pollution problem caused by land development is siltation. Erosion and stream siltation is a particularly serious problem during construction, and thus in rapidly urbanizing areas, as discussed in Guy and Ferguson's "Sediment in Small Reservoirs Due to Urbanization", 1962 (ref. no. 18-002) and Savini and Kammerer, Urban Growth and The Water Regimen, 1961 (ref. no. 11-018). The extent of siltation will depend upon the soil characteristics of the site, the amount of land denuded, the steepness of the slopes being built upon, and the extent to which erosion control measures are undertaken. Planning allows the development to be designed so that the most serious potential erosion problems can be avoided, and thus siltation reduced. It may also permit more effective siltation control measures to be instituted. The possibilities for preventing erosion are discussed in Environmental Protection Agency's Guidelines For Erosion and Sediment Control: Planning and Implementation, 1972 (ref. no. 18-009).

Where soils are poorly suited to waste disposal, use of sanitary landfills can cause water pollution problems through leaching of contaminants into ground water. The problems of sanitary landfill leachate are discussed in Schneider, Hydrologic Implications of Solid Waste Disposal, 1970 (ref. no. 07-022) and Otton, Solid Waste Disposal in the Geohydrologic Environment of Maryland, 1972 (ref. no. 07-021).

C. Noise Pollution

Considerable interest has been generated in recent years over the problem of noise, or as it is defined "unwanted sound." Excessive noise can have serious physical and psychological effects on people, as stated in EPA's Report to the President and Congress on Noise, 1972 (ref. no. 16-016). While the most pronounced source of noise affecting urban areas is probably the jet airplane, the ubiquitous automobile and truck affects a greater number of people. Additional sources with varying degrees of intensity include construction activity, domestic appliances, musical instruments and record players, and people at play. Research has been divided into measurement of the levels and effects of noise, in terms of physiological or psychological damage, or into measurement of noise sources and ways to mitigate them directly or indirectly. Studies have tended to concentrate on critical situations, for example, Branch et al's Outdoor Noise and the Metropolitan Environment: Case Study of Los Angeles with Special Reference to Aircraft, 1970 (ref. no. 16-004), but have also included more general examination of the "noise environment," as summarized in U.S. Environmental Protection Agency, Community Noise, 1971 (ref. no. 16-013).

At a smaller scale, in apartment and townhouse developments, there is concern over transmission of noise from one dwelling to another, or between rooms in one dwelling; this aspect of noise pollution is discussed in HUD's Noise Abatement and Control, 1971 (ref. no. 16-010). HUD guidelines for federally assisted housing project sites as contained in HUD's Noise Assessment Guidelines, 1972 (ref. no. 16-011) set out definitive procedures for the assessment of a site's exposure to outside noise with particular reference to street and highway noise. Such procedures can be applied to any site and critical points can be identified.

Increased density and urban scale bring a general increase in noise, and much of the work being done on the subject is concerned with the central city where avoidance of noise sources is less feasible than in the outer fringes. Nevertheless, as noise reduction is largely a function of either distance or obstructive devices, many of the corrective techniques apply equally to the neighborhood as well as the metropolitan scale.

Since one of the primary sources of noise on the community level is the highway, the success that any development pattern will have in reducing noise pollution will depend, to a great extent, upon its ability to shield its residents from this source. This can be done by physical separation, either in terms of linear distance or by grade separation, or by the judicious use of plantings. Such measures are discussed in Bragdon, "Noise Control in Urban Planning," 1973, (ref. no. 16-002) and Cohen, "Location Design Control of Transportation Noise," 1967 (ref. no. 16-006). Development programs can be phased so as to reduce the amount of annoyance that is created by construction noise, and where this is not possible, quieter construction equipment can be used, as suggested in Baron, The Tyranny of Noise, 1970 (ref. no. 16-001) and EPA, Noise from Construction Equipment, 1971 (ref. no. 16-015). There may be more noise, and it probably affects more people in denser developments, but there is no available information documenting this relationship.

D. Air Pollution

Two major factors govern the quality of air: the presence of pollution generating sources and the inherent or modified meteorological conditions of the region. A region's meteorology determines both the extent to which pollutants are imported from other regions, and the extent to which locally generated pollutants are dispersed. Pollution sources are generally defined as "point sources" (e.g., a smoke stack from an industrial plant), "ribbon sources" (a highway or freeway), or "distributed sources" (widespread traffic, home furnaces, etc.)

Literature Review

The major types of air pollutants are carbon monoxide, nitric oxides, and oxidants (which are emitted primarily by vehicles and react chemically in the atmosphere to form smog), and particulates and sulphur oxides which are emitted primarily from such sources as fossil fueled power plants, home and industrial furnaces, certain industrial processes, and incinerators. These sources and types of air pollutants are summarized in the Air Pollution Primer, 1969 (ref. no. 17-038).

The major current piece of Federal legislation concerning air pollution is the Clean Air Act of 1970. One section of this legislation is directed at reducing the amount of pollution emitted by individual sources such as automobiles, new industrial plants, etc. Another section is directed at establishing and attaining air quality goals for every air region in the United States. Although the individual states have the primary responsibility for setting the goals and devising and implementing plans to achieve them, the state's actions are all subject to approval by the Environmental Protection Agency. A summary of such legislation is presented in the Council on Environmental Quality's Environmental Quality: 1971 (ref. no. 22-019).

Very little work has been done on the effects that alternative development patterns may have on an area's air pollution. For the most part, air pollution is more of a regional problem than a local problem. In both cases, a valid generalization is that the more widely individual emission sources are diffused, the less concentrated the pollution at any one spot will be. From this perspective, if two development patterns emit the same amount of pollution, the denser of the two development patterns will tend to have the more serious air pollution problem. However, there are various indications that different development patterns may emit different amounts of pollutants. The evidence and reasoning supporting these conclusions are summarized below first for non-vehicular pollution and then for vehicular pollution.

The major sources of non-vehicular pollution associated with residential development are: home furnaces, incinerators (home and municipal), and outdoor burning. The emissions from home furnaces depends upon the type of fuel used, the amount of fuel used, and the age of the furnace. Fuel oil is the most polluting of the common home fuels, and electricity is the least polluting, at least at the place of use. However, the generation of electricity in fossil fueled power plants is a major cause of air pollution, so that the use of electricity for heating homes may just transfer the pollution to another location.

Literature Review

The area-wide or national aspects of air pollution from different sources of energy production is discussed in the Council on Environmental Quality's Energy and the Environment: Electric Power, 1973 (ref. no. 14-020).

Given a type of fuel and an age for the furnace, the amount of air pollution caused will be proportional to the amount of energy used. The data on energy use, summarized in Section A of this chapter, indicate that housing design characteristics can affect the amount of energy required for a home, and that townhouses and garden apartments tend to require less energy than detached houses or high-rise apartments. Looking at the other major sources, while the air pollution from an incinerator will be proportional to the amount of solid waste burned, some sources suggest that detached houses tend to generate more solid wastes per dwelling unit than apartments. Most open air burning is of leaves in the fall, and this is likely to be more common where detached houses are surrounded by large lawns.

For motor vehicles, assuming constant emission characteristics for a given stock of vehicles, the amount of air pollution generated will depend upon the amount of vehicular travel, the amount of congestion, and the average length of a trip. U.S. Health Education and Welfare's Calculating Future Carbon Monoxide Emissions and Concentrations from Urban Traffic Data (ref. no. 17-037) presents a relatively simple set of equations for estimating pollution concentrations from concentrated and area wide traffic sources. Another useful source is the Highway Research Board's Procedures For Estimating Highway User Costs, Air Pollution and Noise Effects, 1972 (ref. no. 13-042). The most serious air pollution from motor vehicles typically occurs in the morning rush hour when there is substantial congestion; the vehicles emit more pollution because their engines are cold, and the air is often static. This fact is discussed in Maga, "Vehicular Pollution Effects in Urban Development", 1967 (ref. no. 17-011).

The development pattern can affect the frequency of travel and travelled distances. People living in planned developments have been found to use their vehicles less as noted in Planned Residential Environments, 1970 (ref. no. 21-075). Clustered developments may also be more feasibly served by mass transportation facilities which generate less air pollution per traveler than individual automobiles, as suggested in Berwanger & Wickstrom, Estimating Auto Emissions of Alternative Transportation Systems, 1972 (ref. no. 17-002). However, the development pattern for the entire metropolitan area is probably more important than the development pattern for any individual neighborhood in determining the feasibility of mass transit facilities and thus in reducing regional air pollution. The effects

of planning with regard to air pollution on an area-wide basis are discussed in Voorhees, A Guide to Reducing Air Pollution Through Urban Planning, 1971 (ref. no. 17-031) and Kaman Sciences Corporation, Land Use Planning For Air Quality in the Pikes Peak Area, 1972 (ref. no. 17-036). Minor improvements, other than those noted above, on the more local level can be accomplished by:

- Providing even traffic flow on major roads by eliminating interruptions such as frequent access to the road from stores and homes, stop signs, and poorly timed stop lights, etc.

- Providing clustered and convenient commercial areas and public facilities to eliminate the need to drive from one store or facility to another.

E. Vegetation and Wildlife

Urban development takes up large areas of land directly, much of which may be productive agricultural land, and indirectly affects adjacent land use by changing land values and by creating financial and practical problems for agricultural production. Soil resources are generally lost forever when built over, and the situation is further exacerbated through severe erosion which may result during the construction process. On the other hand, landscaped areas in residential developments are usually less easily eroded than agricultural land due to a more complete year-round cover of grass or vegetation, but are more easily eroded than most land covered with natural vegetation.

In addition to the loss of agricultural land, development involves loss of varying amounts of natural woodland; even where woods are left as part of the development they are frequently "improved" for human use by removal of underbrush and ground cover plants. As a result the range of native species can be reduced together with the food supply and habitat of a variety of wildlife species. Proximity of human activity will also discourage many more timid species. Clustering usually allows some of the land to be preserved with its natural cover, in contrast to more spread out development.

On the other hand, lower density development is usually characterized by intensive plantings of lawns, flowers, shrubs and trees, some of which may offer better habitat conditions for certain songbirds and other man-tolerant creatures, although little quantified data is available on the net gains or losses, except where endangered species are concerned.

Although residents may be aware of the loss of amenity resulting from the departure of deer or rabbit from their community, as well as manifestations of a loss of rural character, they may be unaware of equally or more significant environmental changes, such as the elimination of wetlands which can provide valuable breeding grounds for fish and wild fowl. Again, if planned with environmental sensitivity, clustered developments often provide more flexibility in developing around existing natural vegetation, and thus preserving such valuable ecosystem elements.

VIII. PERSONAL EFFECTS

The four personal factors which appear to be most important to the consideration of costs associated with different housing types and development patterns are: household budget, time consumption, health and safety, and psychic costs.

A. Household Budget

Single-family or condominium ownership entails a large financial commitment including a substantial downpayment. In addition to principal and interest payments, continuing homeownership costs include property taxes, insurance, maintenance and repairs, and all utilities. Offsetting these costs, in part, are common (but not universal) increases in property value and Federal income tax deductions for interest and property taxes. An analysis of the components of shelter costs is presented in Eaves, How The Many Costs of Housing Fit Together, 1969 (ref. no. 01-033).

For more or less equivalent housing packages, owning and renting cost about the same. People tend to pay more for homeownership than for renting because they have a more distant time horizon and they are buying the location as much as the house. Therefore, owners tend to pay a net of ten to twenty percent more annually for home occupancy than do renters of similar status (RERC estimate).

Families living in lower density sprawl areas usually need at least two automobiles to move about conveniently, whereas those living at higher densities near shopping, jobs, recreation, and transit stops can do well with one car or even none. The differences in automobile use associated with density and housing type are discussed in Voorhees, The Reston Transportation Study, 1970 (ref. no. 19-011) and Lansing and Hendricks, Automobile Ownership and Residential Density, 1967 (ref. no. 23-011). The effect of comprehensive community planning on travel habits is shown in Lansing et al, Planned Residential Environments, 1970 (ref. no. 21-075). Other budget items such as food, clothing, recreation, entertainment, savings, etc. may vary somewhat by housing and development types, but are more a function of household characteristics such as family income, education, social status, etc. Information relating such costs by housing type or development pattern is not readily available.

B. Time Consumption

Travel time of various household members differs substantially by housing and development types. At higher densities, work trips by mass transit are more feasible, children can walk to school and shopping centers are within easy driving distance. Church, recreational facilities, community centers, and other centers of interest on a frequent or regular basis are readily accessible by walking, mass transit or a short drive. The relationship of residential density to mass transit feasibility is shown in Tri State Transportation Commission, Transit Supporting Densities, 1970 (ref. no. 13-072) and Black, "Optimizing Density of Development with Respect to Transportation Costs," 1967 (ref. no. 13-020).

As densities decrease and single-family sprawl development becomes dominant, walking trips become short drives, short drives become longer, and mass transit becomes uneconomical and is replaced by long, frustrating commutations by automobile. All family members become more dependent on the automobile and substantially more time is spent in route and waiting to pick someone up.

There are numerous sources which give time, distance, and number of trip factors; such sources include the Institute of Traffic Engineer's Traffic Engineering Handbook, 1965 (ref. no. 13-093); Trip Generation, 1967 (ref. no. 13-095); Highway Research Board's Factors and Trends in Trip Length, 1968 (ref. no. 19-015); System Development Corporation's Survey of Average Driving Patterns in Six Urban Areas of the United States: Summary Report, 1971 (ref. no. 19-016); and U. S. Department of Transportation, Nationwide Personal Transportation Study, 1973 (ref. no. 19-017). Services which point out differences in trip generation by housing type or development pattern include Transportation Requirements and Effects of New Communities -- Study in New Systems of Urban Transportation, 1968 (ref. no. 13-061); Voorhees' Reston Transportation Study, 1970 (ref. no. 19-011); and Lansing et al's Planned Residential Environments, 1970 (ref. no. 21-075). Similar data for commercial areas may be found in Cleveland and Mueller's Traffic Characteristics at Regional Shopping Centers, 1961 (ref. no. 08-021); Los Angeles Regional Transportation Study's 1961 Shopping Center Study: Preliminary Results, 1962 (ref. no. 08-022); Highway Research Board's Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants, 1966 (ref. no. 13-094); and "Trip Generation Study of Selected Commercial and Residential Developments," 1970 (ref. no. 13-096).

Household chores range from only light interior cleaning, clothes washing and cooking in high-rise apartments with full maintenance services to complete "do-it-yourself" -- inside and out -- for most middle-class suburbanites living in single-family subdivisions. The high-rise household may devote only an hour or two a day, with weekends free, to its chores, while the single-family housewife devotes an average of four to seven hours to her tasks (depending on whether she holds an outside job and on the number of children) with some help from the children. The husband will average 1.5 hours per day over the week; he may spend less than one hour a day on weekdays, with larger proportions of time on weekends committed to lawn care, painting, or repair -- not to mention his ongoing efforts to upgrade his home. An exercise in calculating the cost of household work, by family member, is carried out in Walker and Gauger's The Dollar Value of Household Work, 1973 (ref. no. 19-018). Although the literature is deficient on differences in time consumption by housing type, some differences seem likely. People residing in townhouses and walk-up apartments spend more time on chores than the high-rise occupant, but much less than single-family owners.

People living in multi-family developments tend to spend more time in active recreation both because they have more available time and because facilities and other participants are more accessible. Overall, the apartment dweller has more discretionary time each day (particularly on weekends) than do single-family residents.

C. Health and Safety

Traffic accidents are functions of miles driven, road conditions and design, weather conditions, time of day, who is driving and his condition, purpose of the trip, and the characteristics of the vehicle. While higher density living entails fewer and shorter trips, congestion may be greater. Single-family, sparsely developed areas require more and longer trips for all members of the family and, therefore, tend to encourage more drivers in the household.

Sources containing data on rates of accidents, by different locations, types of street or highway or volume of traffic, are included in the Interstate System Accident Research Study, 1970 (ref. no. 20-007); "Traffic Conflict Characteristics - Accident Potential at Intersections," 1968 (ref. no. 20-014); and the Federal Highway Administration's Fatal and Injury Accident Rates on Federal Aid and Other Highway Systems, 1970 (ref. no. 20-021). Attempts at estimating costs of accidents are found in Accident Rates and Costs on Urban Arterials and Freeways, 1970 (ref. no. 20-012) and Cost Effectiveness in Traffic Safety, 1968 (ref. no. 20-022).

Crimes to persons and property tend to be greater in both isolated areas and higher-density areas than in single-family neighborhoods -- largely because of the ability to go unnoticed in both. While available information would indicate that crimes are more numerous in townhouses and apartments than they are in single-family subdivisions, it is not clear how much of this difference is due to the socio-economic characteristics of the occupants and how much is attributable to the housing itself. Nevertheless, crimes against property seem to be less where homeowners predominate. The effect of urban form on crime is discussed in Newman, Defensible Space: Crime Prevention Through Urban Design, 1972 (ref. no. 20-013) and Crime Prevention Through Physical Planning, 1971 (ref. no. 20-018). Statistical summaries of crimes and crime rates are found in the U.S. Department of Justice's Uniform Crime Reports for the United States, annual (ref. no. 05-021).

D. Psychic Costs

All the above considerations notwithstanding, it appears that people tend to choose single-family or condominium ownership over other types of housing, as long as they can afford it, for rather indirect, nebulous reasons such as the following:

1. Single-family housing offers the most interior and exterior privacy for family members. Townhouses are second best. High-rise apartments offer interior privacy for small households. Walk-up apartments have the least amount of perceived privacy overall.

2. Comfort and security are perceived of similar to privacy.

3. Status and possession are interrelated, with size, quality, price, "address," and special amenities being more important than the type of housing per se -- although greatest emphasis is placed on single-family "estates" and luxury high-rises in choice locations.

4. People seeking authority and responsibility find multi-family housing difficult, whereas those who have no need for this find apartments more satisfactory.

5. While all housing types come in a wide range of qualities and designs, many people simply appreciate the aesthetic qualities of one type versus another -- for example, a townhouse over a walk-up.

Since these psychic factors generally are best satisfied with high-quality, well-located single-family housing, there are, in effect, psychic costs of accepting something else. Such trade-offs are common in housing selection. Perceptions of residents regarding these variables are offered in a survey of residents of ten communities reflecting various degrees of planning, summarized in Lansing et al., Planned Residential Environments, 1970 (ref. no. 21-075). Psychic costs such as safety and opportunities for social interaction were measured as part of overall community satisfaction or dissatisfaction. Indices of dissatisfaction with housing environments as psychic costs were also surveyed by the Highway Research Board in Moving Behavior and Residential Choice, 1969 (ref. no. 23-066), the University of Kentucky's Institute for Environmental Studies in Case Studies of Six Planned New Towns, 1973 (ref. no. 23-022), and the Urban Land Institute in Townhouses and Condominiums: Residents' Likes and Dislikes, 1973 (ref. no. 23-023). It is interesting to note that although adults find planned communities (of the new town type) highly satisfactory living environments, teenagers do not. In addition, overall density of a community is less important to the resident than the apparent density of one's immediate environment. Variations in building design and layout result in perceptions of lower density.

IX. COMMUNITY AND HOUSING PREFERENCES

Though consumers generally look for certain features and amenities in their search for a home, the process of coming to a final housing decision is often complicated. Many factors must be confronted and their values weighed simultaneously. Every house is part of a neighborhood in a community placed in a geographical location a defined distance from work. Each of these elements is composed of more detailed factors which affect each other. In addition to housing prices and styles, then, there are a number of factors which families consider in choosing a dwelling. Whether buying or renting, households are, in fact, obtaining a "package" of locational-housing elements.

In recent years, several significant studies have been conducted to determine housing preferences of residents in various environments. The findings of these housing and neighborhood preference studies are based on interviews with sample populations living in apartments, townhouses, and single-family homes.

A. Community Preferences

One of the most useful and applicable studies in the area of residential preferences is Planned Residential Environments, 1970, (ref. no. 21-075) which was conducted at the Institute for Social Research at the University of Michigan by John B. Lansing and his associates. This project involved 1,253 interviews with single-family and townhouse residents of ten communities varying in degree of planning from highly planned to less planned. Both in-town (urban) and peripheral (suburban) communities were included as well as older planned communities.

1. Profile of Planned Community Resident

The typical resident of the ten communities surveyed by Lansing is white, highly educated, aged 36-42 years, has young children and earns $17,000 to $20,000 annually. It should be noted that the exclusion of apartment dwellers from the survey eliminated some of the younger and older people who might live in a planned community.

In Reston, Virginia and Columbia, Maryland, two well-known planned communities, 42 percent of the married couples both possess a B.A. degree. In more moderately planned communities, 30 percent, and in the least planned ones, 18 percent of all couples both have a B.A. Though all are predominately white, the in-town communities have more black residents,

mainly because there are large black populations nearby. The second highest percentage of black residents is found in Columbia and Reston where perhaps there is less importance placed on racial homogeneity and more emphasis on other social characteristics.

2. Rationale for Choosing Present Residential Location

In response to the question of why their present location was chosen, residents in highly planned, peripheral communities responded in terms of liking the town's concept, philosophy or plan. Also frequently mentioned in the Lansing study was a desire for outdoor recreation and nearness to "nature." The next most important drawing factor was the type of people who live there. The moderate to least planned areas drew residents more because of individual house or lot features, the perceived quality of community schools, and accessibility to work.

3. Major Factors in Community Satisfaction

When asked to evaluate their community positively or negatively, Lansing's interviewees gave reasons which may be grouped into three major categories: (1) community and neighborhood, (2) transportation systems, and (3) environmental quality. Factors most frequently mentioned under each category are as follows:

Community and Neighborhood

a. Physical facilities in the area are planned, provided for, accessible; town is planned
b. Good schools
c. Recreation facilities available
d. Neighbors are "friendly," "desirable," "nice"
e. Area is safe from crime, traffic
f. Area has good public services

Transportation System

a. Accessibility of job, stores, downtown
b. Good bus service or other public transportation
c. Good access to freeways

Environmental Quality

a. Area has trees, hills, lakes
b. Plenty of space, little or no congestion
c. Area is quiet; free of pollution
d. Attractive architecture
e. Property is well-kept
f. General beauty, attractiveness of area

In every community, the reason most often cited to explain satisfaction was accessibility to job, shopping, etc. Even though the highly planned towns drew residents because of their "planned nature," residents were most satisified because their area was accessible. Environmental reasons composed the next highest percentage of responses in highly planned areas -- (1) planned nature of area; (2) trees, hills, lakes; (3) plenty of space; little congestion; (4) general beauty of area. In general, a greater degree of planning tended to be associated with high overall satisfaction ratings.

Planned communities included in the Lansing study rate better than unplanned as a satisfactory place of residence for the retired. New towns, however, tend to have a small proportion of people 55 years and older. Teenagers, on the other hand, do not have high regard for planned communities. No explanation for this attitude has been established except the relative isolation of many new towns.

In a similar survey of residents in 28 "open space" communities in which open space was consciously provided by the developer -- Open Space Communities in the Market Place, 1966 (ref. no. 01-088) -- 79 percent of the consumers interviewed noted that the presence of certain community features was important to them. Some of the features mentioned were open space, trees, parks, recreation areas, lakes, schools, and shops. The more of these features to be found in a community, the more heavily the environment figured as a sales factor. Where few features were offered, the house was considered more important than the community in the choice of a residence and in later satisfaction.

B. Neighborhood Densities and Site Plans

The elements discussed above relate to the overall community environment. Satisfaction with one's home and residential environment is also heavily dependent on the physical setting, including density and site arrangement of the neighborhood.

In general, resident satisfaction decreases as density increases, as stated in Townhouses and Condominiums: A Survey of Resident's Likes and Dislikes, 1973 (ref. no. 23-023). However, the actual density of an area is not as important as the density perceived by its residents -- especially the apparent density in the immediate neighborhood. The larger the development project, the higher its density seems. Density is perceived to be lower when a development has small clusters of housing. When housing units are not rows of look-alike dwellings, density is also perceived as lower. A favored site plan is the single-family cul-de-sac, (Lansing, 1970, ref. no. 21-075), because it is considered to be quiet, to provide adequate children's play areas and open space, and to foster a high degree of neighbor interaction. The clustering of townhouse units achieves a similar effect.

When densities are higher than four dwelling units per acre, one is more likely to hear one's neighbors, as noted in Planned Residential Environments, 1970 (ref. no. 21-075). Conversely, a decrease in reported noise accompanies a decrease in density. At the densities mentioned above, outside noise -- traffic, children playing, etc. -- is reported as frequently as interior noise from adjacent residences. Some factors which increase neighborhood noise are (1) the lack of proximity of nearby grounds causing children to congregate near their homes, (2) patios without side and rear fences, (3) thin common walls between dwelling units with poor soundproofing, (4) rows of housing very close together, (5) open parking only ten to twelve feet in front of residences. At all density levels, noise is a crucial factor in resident satisfaction.

Residents who live in areas where the density is twelve and twenty-five dwelling units per acre are most likely to complain of a lack of privacy in the yard and of too little open space and recreation facilities near their home.

C. Housing Types

1. Physical Characteristics and Preferences

Housing can be divided into four major types: single-family detached and attached (townhouses), and garden and high-rise apartments (both of the latter are considered multi-family dwellings). These types are suitable for development at increasing density levels as shown on the following page.

DENSITIES OF HOUSING TYPES

Housing Type	Density (Units per Acre)
Single-family Detached	1 - 5
Townhouse Attached	6 - 10
Garden Apartment (2- or 3-story)	15 - 18
High-rise Apartment	40 - 85 approx.

Source: Community Builders Handbook, 1968 (ref. no. 21-088).

Described above are different types of housing structures, any of which may be either owned or rented. Forms of ownership and their trade-offs are described in a later section.

Surveys of residents in all housing types have shown that the housing goal of a majority of people in the United States is to own a single-family detached home. Such surveys are summarized in Lansing et al's Planned Residential Environments, 1970 (ref. no. 21-075) and Automobile Ownership and Residential Densities, 1967 (ref. no. 23-011). The nature and bases of this preference is sufficiently well known to not need repeating here.

a. Apartment Occupants

When apartment residents were asked if their present dwellings satisfied their needs, the least satisfied group was the child-oriented family, according to the "The Tenants' Point of View," 1970 (ref. no. 23-016). This lack of acceptance of an apartment is easily explained. Families house more people per unit, their needs are greater, income lower, and they can only afford to pay lower rents than childless couples and single residents.

In classifying the most important features of their apartment development, residents classify the size and layout (floor plan and room arrangement) of their own dwelling unit and the atmosphere and environment of the whole development as being of prime importance. This conclusion is presented in Apartment Communities: The Next Big Market, 1968 (ref. no. 01-135). Next in significance are

recreation facilities such as a pool and clubhouse. Location, "good value" and reputation of the development including its prestige factor are also key to apartment choice. Activities provided by the development, the kind of people living there and competence of the management are features perceived to have less importance.

For those residents who choose an apartment basically because of its size and layout, specific aspects of interior design are preferred. People want attractive interiors with ample space and storage area. People will move from one apartment to another to get more storage area. They expect functional modern kitchens and baths, and a dining area (separate is preferable). Individual heating and air conditioning controls are important. Good soundproofing and attractive floors or carpeting is desired by tenants. Most complaints about apartments have to do with high noise levels, uncomfortable heating and cooling levels, and poor maintenance. The majority of apartment residents consider it a temporary place to live, a poor place to raise children and a poor investment.

Apartment residents like apartment living, however, because of a convenient location, increased leisure time due to limited maintenance responsibilities and the availability of open space and recreation facilities.

When moving from their apartment 56 percent of the single residents will move to another apartment, 62.1 percent of the families hope to acquire a single-family detached home, 49 percent of the married residents without children prefer a single-family dwelling while 37 percent of that group prefer another apartment or a townhouse.

b. Townhouse Occupants

The typical townhouse dweller is 30-39 years old with 1.04 children. East Coast townhouse residents are usually younger than their West Coast counterparts. These conclusions are reported in Townhouses and Condominiums: A Survey of Residents Likes and Dislikes, 1973 (ref. no. 23-023).

In this survey of 1,800 townhouse-condominium owners, 75 percent were satisfied for the present, but considered their townhouse a temporary residence. Only 18 percent of East Coast townhouse dwellers would buy another such unit, while 41 percent on the West Coast would. Most prefer to purchase a detached single-family dwelling for their permanent residence.

Townhouse residents enjoy having friendly and close neighbors, limited maintenance, recreation facilities, the financial benefits of ownership (tax advantages, equity build-up) and the prestige and flexibility which go along with owning a home. The price of a townhouse is generally less than a detached dwelling in the same community. This savings is an advantage of which townhouse residents are cognizant. A comparison of the advantages of home ownership versus renting is presented in Market Analysis, Cluster Housing, 1972 (ref. no. 23-024).

To improve their townhouse development, residents suggest more trees, improving landscaping, providing more open space and better play and recreation areas. (Townhouses and Condominiums, 1973 ref. no. 23-023.) Many residents consider present parking facilities inadequate. In choosing another townhouse, they would like to have more space between buildings (to aid privacy and quiet) and more individualistic exterior design.

2. Trade-off Benefits of Owning Versus Renting

Just as there are many elements to be considered and evaluated in choosing a housing type, there are many factors to be weighed in deciding whether to own or rent.

The financial implications of ownership include a greater risk factor than is involved in renting. In buying a home the owner's investment gives him full exposure while renters face only a limited exposure. No down-payment is required as in ownership, so only deposits or other renter fees can be lost. The financial benefit in owning a home is that of equity buildup and tax advantages. The renter is paying only a user fee, is making no investment, and receives no tax benefits.

Because ownership traditionally has involved single-family detached dwellings, ownership has implied low density and its corresponding benefits -- privacy, quiet, private yards. The advent of townhouses, townhouse/condominiums and high-rise apartments has provided for ownership at moderate and high densities. At these densities, owners have less privacy, share common open space areas and benefit from common recreation facilities provided by the developer.

Ownership may imply private parking accommodations in the form of a private driveway, carport, or garage. Condominium owners in a high-rise, however, usually share an open lot or a common underground garage.

Those dwelling units designed for ownership, no matter of what type, are usually larger, with more spacious, flexible layouts than rental units.

A key difference in owning versus renting is the level of responsibility the resident must assume for maintenance of his home. The homeowner of a single-family detached dwelling assumes complete responsibility for maintenance of the interior and exterior of his home and its yard. This responsibility presents frequent, persistent demands on his time. Townhouses, on the other hand, are of two types. Both the house and its lot may be purchased as private property, or the house may be purchased individually while its property remains under the common ownership and supervision of all residents in the development. This practice is reported in Community Builders' Handbook, 1968 (ref. no. 21-088).

In rental units, the tenant is responsible for general housekeeping of the interior of his unit, but the management is responsible for major interior repairs and all exterior and yard maintenance.

Though residents who are not responsible for maintenance highly value their freedom, some of those who own single-family detached dwellings appreciate the freedom to improve their own property. They feel that ownership gives them added incentive. (Market Analysis: Cluster Housing, 1972 (ref. no. 23-024).

Certain psychological benefits accompany ownership. The pride of ownership is considerable in light of the prestige which accompanies being able to afford a home in a desirable neighborhood or community.

D. Housing Type Preferences of Builders and Developers

Housing is a product which builders and developers create in order to make a profit. While there are numerous distinct major factors which influence the type of housing provided, all of these relate to the producer's profit motivation.

Consideration of these factors is important to this discussion because there is a reciprocal causal relationship between what families state as preferences and what producers see fit to supply. The consumer selects from what is available, the builder is governed by marketability and his capability.

The numerous factors which determine the builder-developer choice as housing type fit into the following major categories: (1) character of builder-developer; (2) profit maximization: (3) perceived market demand; (4) local government policy and procedure; (5) Federal government policy and procedure; (6) financing; (7) site specific considerations. The weights assigned to these factors vary from place to place, time to time and producer to producer.

The specific housing preferences of producers include, but are not necessarily limited to, the following:

1. Character of builder-developer

   a. Type of firm(custom, merchant, corporate)
   b. Size of firm
   c. Experience (duration, locations, producer roles, success)

2. Profit maximization

   a. Return on invested capital
   b. Tax shelter
   c. Need or desire to invest excess capital
   d. Equity requirements
   e. Possible capital gains
   f. Long-term appreciation
   g. Type of profit sought
   h. Perceived profitability

3. Perceived Market Demand

   a. Population growth
   b. Demographic shifts
   c. Income levels
   d. Competition

4. Local Government Policies and Practices

   a. Zoning
   b. Subdivision regulations
   c. Building and other codes
   d. Utility availability
   e. Public attitudes
   f. Local cooperation
   g. Property taxes
   h. Conformity to master plan

5. Federal Government Policy and Practices

   a. Mortgage guarantees
   b. Housing subsidy programs
   c. Urban development programs

6. Financing (other than Federal)

   a. Interim financing (availability and cost -- construction)
   b. Permanent financing (availability and cost -- mortgage)
   c. Front-end cash requirements

7. Site Specific Considerations

   a. Location (regional)
   b. Neighborhood character
   c. Size and shape of parcel
   d. Value or price of land
   e. Topography
   f. Soil conditions
   g. Ground cover
   h. Land use regulations

The builder-developer takes all these factors into account, manipulates them to the extent possible to achieve his objectives, and selects a development program to maximize his profit. The results of such efforts, in aggregation, provide the housing supply within which families exercise their preferences.

SECTION II: GENERAL BIBLIOGRAPHY

Explanatory Notes

1. Classification

The materials identified in the literature research process are categorized by the predominate area with which the content of the material dealt; this constitutes the primary classification. In cases where the materials relate to more than one area, a secondary or tertiary classification is used. The code numbers and bibliographic categories, which are also listed on the inside of the back cover for quick reference, are as follows:

Code Number	Bibliographic Categories
01	Residential
02	Open Space/Recreation
03	Schools
04	Health Services
05	Police and Fire Services
06	Governmental Regulation and Administration
07	Solid Waste
08	Commercial
09	Sanitary Sewerage
10	Storm Sewerage
11	Water Supply
12	Utilities/Gas and Electric
13	Transportation
14	Energy Use
15	Water Pollution
16	Noise Pollution
17	Air Pollution
18	Erosion
19	Time Consumption
20	Public Health and Safety
21	New Towns/Planned Communities
22	Environmental Impact
23	Preference
24	Bibliography

The general bibliography itself is organized in sections in the same order as the list of categories. Within each section, the materials are presented in sub-sections for primary, secondary and tertiary classifications. For example, a document relating primarily to schools would be coded 03 and would be found in Section 03. Secondary and tertiary classifications are listed under cross-reference for general bibliography and are also found in those sections, so if the document classified primarily under schools (code = 03) was classified secondarily under open space/recreation (code = 02) and tertially under new towns or planned communities (code = 21), it also would be found in the secondary sub-section of Section 02 and in the tertiary sub-section of Section 21.

2. Reference Numbers

Each document is assigned a unique five-digit reference number (e.g. 03-127). The first two digits are the primary classification code. The last three digits are a serial number within the primary classification section. Most documents are arranged alphabetically by author, although sources added later in the study are listed not in alphabetical order at the end of each section.

3. Geographical or Functional Rating

In addition to the assignment of resource material to primary, secondary, or tertiary categories, each source is rated both as to how well it relates to geographical areas and functional considerations. The purpose of developing such a rating and classification system was to enable users of the bibliography to determine the relative merits of a particular reference in a readily accessible yet meaningful way.

Each item is rated as to relevance to metropolitan, community and/or neighborhood scales, as well as to its possible uses or applications regarding theoretical framework or model, method or technique, analysis, case study, or data source. It should be noted that the categories for both geographical and functional orientation are not mutually exclusive and hence a particular source can relate to only one, several, or all of the categories of geography and function.

The ratings used, and noted again on the inside of the back cover, are as follows:

3 - Very important
2 - Important
1 - Unimportant
- Not applicable

4. Annotated Bibliography

If an item was selected for brief annotation in Section III, it is so indicated in the general bibliography by a "yes" in the column under cross reference for annotated bibliography.

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-001	ACTION - Housing Inc. Plan of Operations: Neighborhood Urban Extension, Pittsburgh. Pittsburgh, Pa.: ACTION - Housing Inc.; 1963.	1	-	-	1	1	-	-	-	No	No
01-002	Adams, John S. "Residential Structure of Midwestern Cities". Annals of the Association of American Geographers (March 1970), p. 3-62.	1	1	-	1	-	1	-	1	13	No
01-003	Albert Veri Associates. An Analysis of Density As It Relates to the Future Environmental Quality of Naples and Coastal Collier County, Florida. Coconut Grove, Florida: Albert Veri Associates; November 1, 1972.	-	3	-	-	-	-	3	3	13	Yes
01-004	Alesch, Daniel J. and Robert A. Levine. Growth in San Jose: A Summary Policy Statement. Santa Monica, California: The Rand Corporation; February 27, 1973.	-	2	-	-	-	1	1	1	No	No
01-005	American Appraisal Company. Boeckh Building Valuation Manual. Milwaukee: Boeckh Division, American Appraisal Company; 1967.	-	-	-	-	-	-	-	3	08	Yes
01-006	American Public Health Association, Committee on the Hygiene of Housing. Planning the Neighborhood. Chicago: Public Administration Service; 1960.	-	2	-	-	-	2	-	2	09 20	Yes
01-007	Amherst Board of Selectmen. Final Report of the Select Committee on Goals for Amherst. Amherst, Massachusetts: Board of Selectmen; January 29, 1973.	-	-	-	-	-	1	-	-	02 09	No
01-008	Applied Decision Systems, Inc. Community Impact Model: Final Design. Prepared for the Michigan State Housing Development Authority. Wellesley Hills, Mass.: Applied Decision Systems, Inc.; 1973.	-	2	-	2	-	-	-	-	06	Yes
01-009	Applied Decision Systems, Inc. The MSHDA Community Impact Model: Demonstration Analysis. Prepared for the Michigan State Housing Development Authority. Wellesley Hills, Mass.: Applied Decision Systems, Inc.; 1972.	-	2	-	1	2	-	1	2	09	Yes
01-010	Archer, R. W. External Costs in the Urban Fringe Land Market. London: University College School of Environmental Studies; 1970.	-	1	-	-	-	2	2	2	No	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-011	Architectural Design. "Housing Research and Development". Architectural Design, vol. 36 (August 1966), pp. 379-402.	-	-	1	-	-	-	2	-	No	No
01-012	Arminger, Louis Earl Jr., Toward a Model of the Residential Location Decision Process: A Study of Recent and Prospective Buyers of New and Used Homes (master's thesis). Chapel Hill, N.C.: University of North Carolina; 1966.	1	1	1	2	-	2	-	-	23	Yes
01-013	Baird, John et. al. "Student Planning of Town Configuration". Environment and Behavior, vol. 4:2 (1972), pp. 159-188.	-	3	3	-	-	2	-	-	08 21	No
01-014	Baltimore Regional Planning Council. Environmental Characteristics Planning: An Alternative Approach to Physical Planning. Baltimore: Regional Planning Council; 1972.	1	2	-	1	-	2	-	2	08 02	No
01-015	Baltimore Regional Planning Council. Environmental Characteristics Planning: Financial Models. Baltimore: Regional Planning Council; 1972.	1	2	-	2	2	-	3	3	06 13	No
01-016	Birmingham-Jefferson County Regional Planning Commission. Alternative Development Patterns. Birmingham-Jefferson County Regional Planning Commission; May, 1968.	-	-	-	-	-	1	-	-	No	No
01-017	Bosselman, Fred P. Alternatives to Urban Sprawl: Legal Guidelines for Governmental Action. Prepared for the consideration of the National Commission on Urban Problems. Research Report No. 15. Washington, D.C.; U.S. GPO; 1968.	-	1	-	-	-	2	-	-	06	Yes
01-018	Brademas, Thomas E. "Fringe Living Attitudes". Journal of the American Institute of Planners, vol. 22 (Spring 1956), pp. 75-82.	1	-	-	-	-	-	-	2	No	No
01-019	Brigham, E. F. A Model of Residential Land Values. Santa Monica, Calif.: The Rand Corporation; August, 1964.	3	-	-	3	2	2	1	1	No	No
01-020	Bucks County Planning Commission. The Urban Fringe: Techniques for guiding the development of Bucks County. Doylestown, Pa.: Bucks County Planning Commission; March, 1970.	-	2	-	-	-	1	1	-	No	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-021	Burns, Leland S. and Frank G. Mittelbach. "Efficiency in the Housing Industry" in The Report of the President's Committee on Urban Housing, Technical Studies, Vol. II. Washington, D.C.: U.S. GPO; 1968.	-	1	-	-	-	1	-	-	No	No
01-022	Business Week. "The Golden Days are Gone in Suburbia". Business Week (September 1970), pp. 35-40.	-	1	-	-	-	1	-	-	No	No
01-023	Chambers, John W. "Do Single Family Homes Pay Their Way?: Summary and Comment" in Leonard T. William's Growth Cost-Revenue Studies. Berkeley, Calif.: Associated Home Builders of the Greater Eastbay, Inc.; 1972.	2	-	-	-	3	3	2	3	03 09	Yes
01-024	Chapin, F. Stuart, Jr. Urban Land Use Planning. Second Edition. Urbana, Ill.: University of Illinois Press; 1965.	3	2	-	2	3	-	-	-	08 02	Yes
01-025	Chapin, F. Stuart Jr. and Henry C. Hightower. "Household Activity Patterns and Land Use". Journal of the American Institute of Planners, vol. 31:3 (August 1965), pp. 222-231.	-	2	-	1	-	1	-	-	No	No
01-026	Clawson, Marion. Land Use Information: A Critical Survey of U.S. Statistics Including Possibilities for Greater Uniformity. Washington, D.C.: Resources for the Future, Inc. and The Johns Hopkins Press; 1965.	-	1	1	-	1	1	-	-	No	No
01-027	Clawson, Marion. Suburban Land Conversion in the United States. Baltimore: The Johns Hopkins Press; 1972.	2	-	-	-	-	3	-	2	No	Yes
01-028	County of Santa Clara Planning Department. Land Use Issues in Santa Clara County. San Jose: County of Santa Clara Planning Department; 1963.	-	2	-	-	-	2	-	-	13	No
01-029	Dickey, John W. and Alan W. Steiss. "Model for Optimizing the Use of Housing in New Town". Ekistics, July, 1969.	-	-	-	2	-	-	-	-	No	No
01-030	Dobriner, W. (ed.) The Suburban Community. New York: G. P. Putnam; 1958.	-	2	-	-	-	1	2	-	02 23	No
01-031	Donaldson, Scott. The Suburban Myth. New York: The Columbia University Press; 1969.	-	1	-	-	-	1	-	-	23	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-032	Downs, Anthony. "Uncompensated Nonconstruction Costs which Urban Highways and Urban Renewal Impose Upon Residential Households" in Julius Margolis' The Analysis of Public Output. New York, New York: National Bureau of Economic Research, Inc.; 1970.	2	-	-	-	-	2	-	-	13	No
01-033	Eaves, Elsie. How the Many Costs of Housing Fit Together. Prepared for the consideration of the National Commission on Urban Problems. Research Report No. 16. Washington, D.C.: U. S. GPO; 1969.	-	-	-	2	-	2	-	2	No	Yes
01-034	Eberhard, John P. The Performance Concept: A Study of Its Application to Housing. Washington, D.C.: Institute for Applied Technology, National Bureau of Standards. Distributed by NTIS, Springfield, Virginia; 1969.	-	-	1	-	1	1	-	-	No	No
01-035	Eckbo, Dean, Austin, and Williams. Cypress Special: The Townscope, Urban Design, Open Space Element of the General Plan. Cypress, California: California Council of Intergovernmental Relations; 1971.	-	2	-	1	-	1	-	-	02 03	No
01-036	Eldredge, H. Wentworth. (ed.) Taming Megalopolis, Vol. 1. Garden City, New York: Doubleday & Company, Inc.; 1967.	1	-	-	-	-	-	-	1	08 13	No
01-037	Eldredge, H. Wentworth. (ed.) Taming Megalopolis: How to Manage an Urbanized World. Vol. 2. New York, New York: Praeger, Inc.; 1967.	-	2	-	2	-	-	2	-	21	No
01-038	Finkler, Earl. Nongrowth As A Planning Alternative: A Preliminary Examination Of An Emerging Issue. Chicago: American Society of Planning Officials, Planning Advisory Service Report No. 283; 1972.	-	2	-	2	-	-	2	-	No	Yes
01-040	F. W. Dodge Corporation. Building Cost Calculator and Valuation Guide. New York, New York: McGraw-Hill, Inc.; 1973.	-	-	-	-	-	-	-	3	04 03	Yes
01-041	Gaffney, Mason, and Richard F. Muth. Housing Costs: The Effects of Public Policies and Practices and The Effects of Housing Demand. Arlington, Va.: Institute for Defense Analysis, Program Analysis Division; 1968.	-	-	-	-	1	-	-	1	No	No

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Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-042	Gershen, Alvin E. Apartments: General Factors in Planning. Mountainside, New Jersey: Federation Planning Information Report Series, New Jersey Federation of Planning Officials, vol. 3:1; January 1968.	-	-	-	-	-	-	1	-	No	Yes
01-043	Glendora, California Planning Commission. Glendora Land Use Plan. Glendora: Glendora, California Planning Commission; 1961.	-	2	-	-	-	1	1	1	08 03	No
01-044	Gold, Niel N. and Paul Davidoff. "The Supply and Availability of Land for Housing for Low- and Moderate-Income Families" in The Report of The President's Committee on Urban Housing, Technical Studies, Vol. II, Washington, D.C.: U.S. GPO; 1968, pp. 288-409.	3	-	-	-	-	3	3	3	No	No
01-045	Goldsmith, Harold F. and Elizabeth L. Unger. "Differentiation of Urban Subareas: A Re-examination of Social Area Dimensions". U. S. National Institute of Mental Health, Laboratory Paper No. 35; November 1970.	-	2	-	-	-	1	-	-	No	No
01-046	Gregory, John. "County Growth: Applying Brakes Lightly". Los Angeles Times (February 4, 1973), p. 1.	3	-	-	-	-	3	2	-	No	No
01-047	Grossman, Howard J. "Apartments in Community Planning: A Suburban Area Case Study". Urban Land, vol. 25:1 (January 1966), pp. 3-6.	-	1	-	1	-	-	1	-	No	No
01-048	Hammer, Green, Siler Associates. Regional Housing Planning: A Technical Guide. Washington, D.C.: American Institute of Planners; 1972.	3	-	-	2	-	1	-	-	No	No
01-049	Hoch, Irving. "Income and City Size." Urban Studies, vol. 9:3 (October 1972), pp. 299-328.	3	-	-	1	-	1	-	1	17 09	No
01-050	The Home Builders Association of Metropolitan Colorado Springs. Growth: An Analysis of Alternative Policies For Metropolitan Colorado Springs. Colorado Springs, Colorado: Colorado Springs Homebuilders Association; September 1972.	2	-	-	-	-	2	2	-	11	Yes
01-051	House & Home. "Rezoning for the PUD". House & Home (February 1971), pp. 58-63.	-	1	-	-	-	-	-	2	No	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-052	Huntoon, Maxwell C. Jr. "Is Housing's No. 1 Problem Finally Getting the Action it Demands?". House & Home (August 1972), pp. 57-67.	-	3	-	-	-	2	-	2	No	Yes
01-053	Ingram, Gregory et. al. The Detroit Prototype of the NBER Urban Simulation Model. New York: National Bureau of Economic Research; 1972.	1	1	-	3	-	-	-	1	No	No
01-054	International City Managers' Association. Apartments in the Suburbs. Washington, D. C.: Management Information Service Report No. 245; 1964.	-	-	-	-	2	-	-	2	06	Yes
01-055	International Conference of Building Officials. Uniform Building Code. Pasadena, California: ICBO; 1967.	-	-	-	-	-	-	-	2	20 06	Yes
01-056	James, Franklin J. and James W. Hughes. Economic Growth and Residential Patterns. New Brunswick, New Jersey: Rutgers University Center for Urban Policy Research; 1972.	2	-	-	1	-	1	-	-	No	No
01-057	Kain, John F. and John M. Quigley. Measuring the Quality and Cost of Housing Services. Cambridge, Mass.: Harvard University, Program on Regional and Urban Economics, Discussion Paper No. 54; 1969.	-	-	-	-	-	1	-	-	23	No
01-058	Kaiser, Edward John. Toward a Model of Residential Developer Locational Behavior. Chapel Hill, North Carolina: Center for Urban and Regional Studies; 1966.	-	1	-	1	-	1	-	-	23	No
01-059	Keating, William D. Emerging Patterns of Corporate Density. Berkeley: Institute of Urban and Regional Development, The University of California, Special Report 8; 1973.	-	-	-	-	-	2	-	-	No	No
01-060	Kettaneh, Anthony, ed. Project Romulus: An Adaptable High Density Urban Prototype. Cambridge, Mass.: The M.I.T. Press, M.I.T. Report No. 12; 1968.	-	2	-	3	3	3	-	3	21 13	Yes
01-061	Lamanna, Richard A. "Value Consensus Among Urban Residents". Journal of the American Institute of Planners, vol. 30:4 (November 1964), pp. 317-322.	-	1	1	-	1	1	1	-	No	No
01-062	Lane Council of Governments. Eugene, Springfield Metropolitan Area, 1990 General Plan. Eugene, Oregon: Lane Council of Governments; August 1972.	-	2	-	-	-	1	-	-	08	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-063	Leven, Charles L. Changing Sizes, Forms, and Functions of Urban Areas. St. Louis, Missouri: Institute for Urban and Regional Studies, Washington University; February 1972.	2	-	-	-	-	2	-	-	13 06	No
01-064	Levitt & Sons, Inc. "Levitt's Comments" in The Report of The President's Committee on Urban Housing, Technical Studies, Vol. II. Washington, D.C.: U.S. GPO; 1968, pp. 1-52.	-	1	-	-	-	-	3	3	No	Yes
01-065	Levy, Stephen and Robert K. Arnold. An Evaluation of Four Growth Alternatives in the City of Milpitas, 1972-1977. Palo Alto, Calif.: Institute of Regional and Urban Studies; August 1972.	-	3	2	-	-	3	3	3	08 03	Yes
01-066	Lowry, Ira S. Seven Models of Urban Development: A Structural Comparison. Santa Monica, Calif.: The Rand Corporation; September 1967.	-	-	-	2	-	2	-	-	No	No
01-067	Lovelace, Eldridge, and William L. Weismantel. Density Zoning: Organic Zoning for Planned Residential Developments. Washington, D.C.: Urban Land Institute; 1961.	-	-	-	-	-	1	-	-	No	No
01-068	Lozano, Eduardo E. "Housing Costs and Alternative Cost Reducing Policies". Journal of the American Institute of Planners, vol. 38:3 (May 1972), pp. 176-181.	-	-	-	-	-	2	-	-	No	Yes
01-069	Mace, Ruth L. and Warren J. Wicker. Do Single Family Homes Pay Their Way?: A Comparative Analysis of Costs and Revenues for Public Services. Washington, D.C.: Urban Land Institute, Research Monograph No. 15; 1968.	2	-	1	-	-	3	-	3	03 09	Yes
01-070	Maisel, Sherman J. and Louis Winnick. "Family Housing Expenditures: Elusive Laws and Intrusive Variances" in Smith, Wallace F. (ed.) The Growing City. Berkeley, Calif.: Center for Real Estate and Urban Economics, University of California, Berkeley; 1971, pp. 100-176.	-	1	1	1	1	1	-	1	No	No
01-071	Marketing Research Department, McGraw-Hill Information Systems Company. "A Study of Comparative Time and Cost for Building Selected Types of Low-Cost Housing" in The Report of The President's Committee on Urban Housing, Technical Studies, Vol. II. Washington, D.C.: U.S. GPO; 1968, pp. 1-52.	-	1	-	-	3	3	-	3	No	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-072	Marshall and Swift Publications. Marshall Valuation Service. Los Angeles: Marshall and Swift Publication Company; 1971.	-	-	-	-	-	-	-	3	05 03	Yes
01-073	Martin, Walter T. The Rural-Urban Fringe: A Study of Adjustment to Residence Location. Eugene, Oregon: University of Oregon Press; 1955.	-	-	-	2	2	-	-	-	23	No
01-074	Massie, Ronald Wayne. A System of Linked Models for Forecasting Urban Residential Growth. Chapel Hill, North Carolina: Center for Urban and Regional Studies; 1969.	-	2	-	1	-	-	-	-	No	No
01-075	McClellan and Elliott A. Medrich. "Outdoor Recreation: Economic Consideration for Optimal Site Selection and Development". Land Economics, vol. 45:2 (May 1969), pp. 174-182.	-	-	-	-	-	1	-	-	No	No
01-076	McGivern, William C. "Putting a Speed Limit on Growth". Planning: The ASPO Magazine (November 1972), pp. 263-265.	-	2	-	-	-	2	-	-	No	No
01-077	Metropolitan Washington Council of Governments. Housing Policies and Programs For Metropolitan Washington. Washington, D.C.: Metropolitan Washington Council of Governments. Distributed by NTIS, Springfield, Va.; 1971.	3	-	-	-	-	2	-	1	No	No
01-078	Michigan State Housing Development Authority. The Primary Economic Impact at the State and Local Levels of MSHDA - Financed Housing. Lansing: Michigan State Housing Development Authority, DSS Publication 166; July 1972.	-	1	-	1	-	1	-	1	No	No
01-079	Mid-Willamette Valley Council of Governments. The Costs of Urban Growth for the Salem, Oregon Area. Salem, Oregon: Mid-Willamette Valley Council of Governments, Urban Growth Policies No. 4; July 1972.	3	-	-	-	-	2	2	1	06 23	No
01-080	Milgram, Grace. The City Expands: A Study of the Conversion of Land From Rural to Urban Use. Philadelphia: University of Pennsylvania, Institute for Environmental Studies; 1967.	2	-	-	1	-	1	1	1	No	No
01-081	Milgram, Grace. U. S. Land Prices - Directions and Dynamics. Washington, D.C.: U.S. GPO; 1968.	2	-	-	-	-	2	-	1	No	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-082	Miller, Richard A. "Exurbia's Last Best Hope". Architectural Forum (April 1958), pp. 95-97.	-	1	-	-	-	1	-	-	No	No
01-083	Moore, Eric G. Residential Mobility in the City. Evanston, Illinois: Northwestern University. Commission on College Geography Resource Paper No. 13; 1972.	-	-	1	1	-	-	-	-	No	No
01-084	Muller, Thomas, and Grace Dawson. The Fiscal Impact of Residential and Commercial Development: A Case Study. Washington, D.C.: The Urban Institute; 1972.	-	3	-	-	2	2	3	-	No	Yes
01-085	Neutze, Max. The Suburban Apartment Boom: Case Study of A Land Use Problem. Washington, D.C.: Resources for the Future; 1968.	-	1	-	-	-	2	-	2	No	Yes
01-086	Niedercorn, John H. An Econometric Model of Metropolitan Employment and Population Growth. Santa Monica, Calif.: The Rand Corporation; October 1963.	1	-	-	1	-	-	-	-	No	No
01-087	Niedercorn, John A. and Edward F. H. Hearle. Recent Land-Use Trends in Forty-Eight Large American Cities. Santa Monica, Calif.: The Rand Corporation; September 1963.	-	-	-	1	-	1	-	1	No	No
01-088	Norcross, Carl. Open Space Communities in the Market Place. Washington, D.C.: Urban Land Institute; 1966.	-	2	-	-	-	2	2	-	12	Yes
01-089	Payne, Gerald. Implications of Slower Growth for Santa Clara County. Santa Monica, Calif.: The Rand Corporation; November 1972.	-	2	-	2	-	1	-	-	No	No
01-090	Payne, Gerald. An Interim Report on Growth in San Jose. Santa Monica, Calif.: The Rand Corporation; May 1972.	-	2	-	-	-	-	1	-	No	No
01-091	Pennsylvania Department of Community Affairs. Standards For Suburban Housing Mix: Bucks County, Pennsylvania. Philadelphia: Fels Center of Government, University of Pennsylvania; 1971.	3	3	3	-	-	3	-	3	03 09	Yes
01-092	Peterson, George L. "A Model of Preference: Qualitative Analysis of the Perception of the Visual Appearance of Residential Neighborhoods". Journal of Regional Science, vol. 7 (1967), pp. 19-32.	-	1	-	2	-	2	-	-	23	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-093	Planning Policy Committee of Santa Clara County. Zoning and Housing: Santa Clara County. San Jose, California: County Planning Department; 1970.	1	1	-	-	-	2	2	2	No	No
01-094	Pollard, Leon. "The Interrelationships of Selected Measures of Residential Density". Journal of the American Institute of Planners, vol. 20:2 (Spring 1954), pp. 87-96.	-	3	-	-	3	-	-	-	No	No
01-095	Population Reference Bureau, Inc. "Suburban Growth: A Case Study". Population Bulletin, vol. 28:1 (February 1972).	3	-	-	-	-	3	3	-	09	Yes
01-096	Pulaski County Metropolitan Area Planning Commission. Residential Land Use Plan. Little Rock, Arkansas: Pulaski County Metropolitan Area Planning Commission; 1964.	2	-	-	-	-	1	1	1	No	No
01-097	Putnam, Robert. "Site Planning and Social Behavior". Journal of Social Issues, vol. 22:4 (1966), pp. 103-115.	-	1	2	-	1	2	-	-	02 23	No
01-098	Rand Urban Policy Analysis Group. Alternative Growth Strategies for San Jose: Initial Report of the Rand Urban Policy Analysis. Project. Santa Monica, Calif.: The Rand Corporation; October 1971.	-	2	-	-	-	3	-	-	No	Yes
01-099	Rapkin, Chester. The Private Rental Housing Market in New York City, 1965. New York: City Rent and Rehabilitation Administration; 1966.	2	-	-	-	-	-	1	1	No	No
01-100	Rhode Island Department of Community Affairs. The Rhode Island Apartment Occupant: An Analysis and Review. Providence, R.I.: Department of Community Affairs; July 1972.	1	1	1	-	-	1	1	1	No	No
01-101	Rolph, Elizabeth. Decisionmaking by Residential Developers in Santa Clara County. Santa Monica: Rand Corporation; March 1973.	-	2	-	2	-	2	1	1	No	Yes
01-102	Rossi, Peter. Why Families Move. Glencoe, Ill.: The Free Press; 1955.	3	3	3	-	-	2	-	-	23	No
01-103	Sacramento (Calif.) County Planning Department. General Plan--Appendix One: Economic Analysis. Sacramento, Calif.: County Planning Dept.; March 1972.	3	-	-	-	-	3	-	3	No	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 01: RESIDENTIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-104	Sagalyn, Lynne B. and George Sternlieb. Zoning and Housing Costs. Rutgers University, The State University of New Jersey, 1972.	-	1	-	-	-	2	-	-	No	No
01-105	St. Louis County Planning Commission. Apartments in St. Louis County. Clayton, Mo.: St. Louis County Council; 1972.	-	-	-	-	-	2	3	-	03	Yes
01-106	San Francisco Planning and Urban Renewal Association. Impact of Intensive High Rise Development in San Francisco: Step One-Part A, Initial Feasibility Test. San Francisco: SPUR; 1972.	3	-	-	-	3	-	3	2	08 22	Yes
01-107	Santa Clara (Calif.) County Planning Department. "The Costs and Revenues of Local Housing Development" in William Leonard's Growth Cost-Revenue Studies. Berkeley, Calif.: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.	-	3	-	-	3	3	-	3	06 05	Yes
01-108	Saroff, Jerome R. and Alverta Z. Levitan. Survey Manual for Comprehensive Planning. Anchorage, Alaska: Development Research Associates, Inc.; 1969.	-	2	-	2	2	2	2	-	23 22	No
01-109	Schaenman, Philip et al. Measurements for Evaluating Land Developments. Washington, D.C.: The Urban Institute; 1972.	-	1	-	-	-	2	2	2	04 08	Yes
01-110	Schmid, A. Allan. Converting Land From Rural to Urban Uses. Washington, D.C.: Resources for the Future; 1968.	-	-	2	-	-	2	-	-	No	Yes
01-111	Schmitt, Robert C. "Density, Health and Social Disorganization". Journal of the American Institute of Planners, vol. 32:1 (January 1966), pp. 38-40.	-	-	1	1	-	-	-	-	No	No
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01-115	Southeastern Wisconsin Regional Planning Commission. A Land Use Plan Design Model--Volume Two: Model Test. Waukesha, Wis.: Southeastern Wisconsin Regional Planning Commission, Technical Report No. 8; October 1969.	-	-	-	2	-	2	-	1	No	No
01-116	Southern California Association of Governments. Housing Element. Los Angeles: Southern California Association of Governments; 1971.	3	-	-	-	-	1	1	1	No	No
01-117	Stegman, Michael A. "Accessibility Models and Residential Location". Journal of the American Institute of Planners. vol. 35:1 (January 1969), pp. 22-29.	3	-	-	3	-	3	-	-	23	Yes
01-118	Stegman, Michael A. Housing and Economics - The American Dilemma. Cambridge, Mass.: Massachusetts Institute of Technology; 1970.	-	1	-	1	-	2	-	2	23	No
01-119	Sternlieb, George. "Estimation of School Load and Population" in Housing Development and Municipal Costs. Section I. New Brunswick, N.J.: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	1	1	-	-	2	-	2	03	No
01-120	Sternlieb, George. "Municipal Costs as a Function of Residential Growth" in Housing Development and Municipal Costs. Section II. New Brunswick, N.J.: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	-	-	2	2	-	-	2	No	Yes
01-121	Sternlieb, George et. al. The Affluent Suburb: Princeton. New Brunswick, N.J.: Transaction, Inc.; 1971.	-	3	-	-	-	-	1	-	No	No
01-122	Sternlieb, George, and Robert Burchell. Planned Unit Development: An Analysis of Its Progress In New Jersey. Mountainside, New Jersey: New Jersey Federation of Planning Officials. Federation Planning Information Report, vol. 7:1; 1972.	-	2	-	-	-	2	-	-	No	Yes
01-123	Stollenwerk, Donald A. Cost Factors in the Choice of Subdivision Locations by Residential Developers. Chapel Hill, North Carolina: University of North Carolina Department of City and Regional Planning (thesis); 1964.	-	2	-	2	-	2	-	-	23 10	Yes

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01-125	Stuart, Darwin G. and Robert B. Teska. "Who Pays For What: A Cost-Revenue Analysis of Suburban Land Use Alternatives". Urban Land, vol. 30:3 (March 1971), pp. 3-16.	-	-	-	-	-	2	-	-	03	Yes
01-126	Sussna, Stephen. "Residential Densities or a Fool's Paradise". Land Economics, vol. 49:1 (February 1973), pp. 1-13.	-	-	2	-	-	2	1	-	21	No
01-127	Syracuse, Lee A. The Single Family Home: A Financial Asset to the Community. Washington, D. C.: Home Building Press; Information Bulletin No. 3, 1968.	-	1	-	-	-	2	-	2	No	Yes
01-128	Szego, G. C. Cost Reducing Condominium Systems for Low Cost Homes. Arlington, Va.: Institute for Defense Analysis, Program Analysis Division; 1968.	2	1	1	-	-	3	2	3	No	Yes
01-129	Tennessee Town & City. "Modular Housing: Breakthrough for Memphis". Tennessee Town & City, vol. 21:2 (February 1970), pp. 5-6.	-	2	-	-	-	-	1	-	No	No
01-130	Triton Foundation, Inc. A Study of a Prototype Floating Community. Cambridge, Mass. Prepared for the Department of Housing and Urban Development. Distributed by NTIS, Springfield, Va.; 1968.	-	2	-	-	-	2	2	1	08 03	No
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01-135	Urban Land Institute. Apartment Communities: The Next Big Market. Washington, D.C.: ULI Technical Bulletin No. 61; 1968.	-	-	3	-	-	2	-	-	23	Yes
01-136	Urban Land Institute. Density: Five Perspectives - A ULI Special Report. Washington, D.C.: ULI; 1972.	-	2	-	-	-	2	-	-	No	Yes
01-137	Urban Land Institute. The Effects of Large Lot Size on Residential Development. Washington, D.C.: ULI, Technical Bulletin No. 32; 1958.	-	-	-	-	-	3	-	3	03 09	Yes
01-138	Urban Land Institute. Innovations vs. Traditions in Community Development. Washington, D.C.: ULI Technical Bulletin No. 47; 1963.	-	3	-	-	-	3	3	3	21	Yes
01-139	Urban Land Institute. Project Reference File. Washington: Urban Land Institute (various issues); 1971-present.	-	-	3	-	-	-	-	2	08	Yes
01-140	Urban Studies Center. Community Development Fiscal Management Computer Model. Louisville, Kentucky; Urban Studies Center, University of Louisville; February 1973.	-	2	-	2	-	-	-	-	06	No
01-141	Wallace-McHarg Associates, Inc. Plan for the Valleys. Baltimore, Md.: Green Spring and Worthington Valley Planning Council, Inc.; (undated).	3	-	-	-	-	3	2	2	09	No
01-142	Weiss, Shirley F. and Edward J. Kaiser. "A Quantitative Evaluation of Major Factors Influencing Urban Land Development in a Regional Cluster". Traffic Quarterly, vol. 22:1 (January 1968), pp. 109-116.	1	-	-	1	-	-	1	-	No	No
01-143	Wendt, Paul F. "Large-Scale Community Development" in Smith, Wallace F. (ed.) The Growing City. Berkeley, Calif.: Center for Real Estate and Urban Economics, University of California, Berkeley; 1971, pp. 245-264.	-	2	-	2	2	2	-	2	No	No
01-144	Wheaton, William et. al. (eds.) Urban Housing. New York: The Free Press; 1966.	1	1	-	-	-	1	-	-	23	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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01-147	Harvey, R. O. and W. A. V. Clark. "The Nature and Economics of Urban Sprawl". Land Economics, vol. 41:1 (1965), pp. 1-9.	1	1	-	-	-	2	-	-	No	Yes
01-148	Kenney, Kenneth B. The Residential Land Developer and His Land Purchase Decision. Chapel Hill, North Carolina: The University of North Carolina; 1972.	-	-	-	2	2	2	-	-	23	Yes
01-149	Loewenstein, Louis K. and David W. Walters. Municipal Cost/Revenue Analysis for Planned Unit Developments. Special Report No. 9. Berkeley, California: Institute of Urban and Regional Development, University of California; 1973.	-	1	-	-	1	-	2	2	03 09	Yes
01-150	San Francisco Planning and Urban Renewal Association. Impact of Intensive High-Rise Development in San Francisco: Step One - Part B, A Final Feasibility Report. San Francisco, California: SPUR; 1972.	-	3	-	-	2	2	-	2	06 22	Yes
01-151	State of Hawaii, Department of Planning and Economic Development. Central Oahu Planning Study. A Summary Report and four technical supplements. Honolulu, Hawaii. Planning Division, Department of Planning and Economic Development; October 1972.	2	-	-	-	-	2	2	2	02 18	Yes
01-152	U. S. Bureau of the Census. Construction Reports: Series C-25: Characteristics of New One-Family Homes, 1971. Washington, D. C.: U. S. Department of Commerce; 1972.	-	-	-	-	-	-	-	2	No	Yes
01-153	Real Estate Research Corporation. Historical Analysis of Unit Land Prices. Prepared for the Department of Housing and Urban Development. Unpublished. April 1973.	3	2	-	-	-	3	3	3	08	Yes
01-154	Van Alstyne, Carol (ed.) Land Bank Handbook. Greensboro, North Carolina: Piedmont Triad Council of Governments; 1972.	-	3	-	2	-	2	-	2	02	Yes
01-155	Bartholomew, Harland. Land Uses in American Cities. Cambridge, Massachusetts: Harvard University Press; 1955.	3	3	-	1	3	3	3	3	No	Yes

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02-017	Kaminsky, Jacob. Environmental Characteristics Planning: A Concept for Land Use Planning and Land Development Standards. Baltimore Regional Planning Council. Distributed by NTIS, Springfield, Virginia; 1968.	1	1	-	-	3	-	-	-	02	No
02-030	National Association of Homebuilders. Open Space and the Townhouse. Washington, D. C.: National Association of Homebuilders; 1970.	-	-	-	-	-	1	-	-	02	No
02-039	Southern California Research Council. The New Shape of Southern California 1985. Los Angeles, California: Los Angeles Occidental College; February 1970.	2	-	-	-	-	1	-	-	02 22	No
03-016	Sternlieb, George. The Garden Apartment Development: A Municipal Cost-Revenue Analysis. New Brunswick, New Jersey: Bureau of Economic Research, Rutgers University; 1964.	-	2	-	-	2	2	-	2	03 06	Yes
06-006	Bahl, Roy M. Metropolitan City Expenditures. Lexington, Kentucky: University of Kentucky Press; 1969.	3	-	-	-	1	2	-	-	06 05	No
06-010	City of Milpitas, Planning Department. City of Milpitas: History and Evaluation of the 1971-72 Local Government Structure Study. Milpitas, California: City of Milpitas, Planning Department; 1972.	-	-	-	-	2	-	2	2	06	Yes
06-036	Thompson, Wilbur R. A Preface to Urban Economics. Baltimore: Johns Hopkins Press; 1965.	2	2	-	-	-	2	-	-	06	Yes
08-004	Claire, William H. (ed.) Urban Planning Guide. New York: American Society of Civil Engineers; 1969.	-	1	1	-	-	1	-	-	08 13	No
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13-011	Ball, E.M. "Travel Characteristics of Two San Diego Subdivision Developments". Highway Research Record No. 203. Washington, D.C.: Highway Research Board; 1958.	-	-	2	-	-	2	2	2	13	Yes
13-043	Hill, Donald. "A Growth Allocation Model for the Boston Region". Journal of the American Institute of Planners, vol. 31:2 (May 1965); pp. 111-119.	2	-	-	1	-	-	-	-	13	No
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13-052	Markovitz, Joni et. al. Transportation Implications of Economic Cluster Development. New York: Tri-State Regional Planning Commission, Interim Technical Report; 1971.	2	2	-	-	-	2	2	-	13	Yes
13-053	Meyer, J. R.; J. F. Kain; and M. Wohl. The Urban Transportation Problem. Cambridge, Massachusetts: Harvard University Press; 1965.	-	2	-	-	-	2	-	-	13	Yes
13-062	Rodwin, Lloyd. "New Towns, Urban Growth Strategies and Transportation". Workshop on Transportation for New Towns and Communities. Washington, D.C.: Institute of Public Administration (NTIS); December 1969.	-	-	-	-	-	1	-	-	13 21	No
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14-009	Hittman Associates, Inc. Residential Energy Consumption. Phase I Report. Columbia, Maryland: Hittman Associates; 1972. Available NTIS.	-	-	3	-	-	-	1	3	14	Yes

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17-001	Anderson, Robert J., Jr. and Thomas D. Crocker. Air Pollution and Housing: Some Findings. Lafayette, Indiana: Graduate School of Industrial Administration, Purdue University; January 1970.	-	-	-	-	-	1	1	-	17 23	No
17-015	Nourse, Hugh O. "The Effect of Air Pollution on Home Values". Land Economics, vol. 43:2 (May 1967), pp. 181-189.	2	-	-	-	-	2	2	2	17	Yes
20-003	Boyce, Shirley. "High Rise Fire." Buildings (July 1971), pp. 36-41.	-	-	-	-	-	1	-	1	20 05	No
20-013	Newman, Oscar. Defensible Space: Crime Prevention Through Urban Design. New York: The MacMillan Company; 1972.	-	-	-	-	-	3	-	3	20	Yes
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21-045	Gans, Herbert. The Levittowners: Ways of Life and Politics in a New Suburban Community. New York: Pantheon Books; 1967.	-	2	-	-	-	1	2	-	21	No
21-051	Gladstone, Robert M. "Does Building a City Make Economic Sense?" The Appraisal Journal, vol. 34:3 (July 1966), pp. 407-423.	-	-	-	-	-	2	-	-	21	No
21-052	Gladstone, Robert. "New Towns' Role in Urban Growth Explored". Journal of Housing, vol. 23:1 (January 1966), pp. 29-36.	-	-	-	-	-	1	-	-	21	No
21-057	Hearle, Edward F. R. and John H. Niedercorn. The Impact of Urban Renewal on Land-Use. Santa Monica, California: The Rand Corporation; June 1964.	2	-	-	-	2	-	-	-	21	No
21-079	Llewelyn-Davies, R. "Town Design". Town Planning Review, October 1966.	-	1	1	-	-	1	-	-	21	No
21-084	MacCormae, Richard and Peter Willmott. "A Radburn Estate Revisited". The Architect's Journal, March 25, 1964.	-	2	2	-	-	2	2	-	21 23	No
21-085	Marans, R. W. "Social and Cultural Influences on New Town Planning". Journal of the Town Planning Institute, vol. 36:2 (February 1970).	-	-	1	-	-	2	-	-	21 23	No
21-114	The Rouse Company. An Analysis of Development Trends and and Projections and Recommendations for a New City in South Richmond. Columbia, Maryland: The Rouse Company; May 1970.	-	2	-	-	-	3	3	3	21 12	Yes
21-131	United Nations. Department of Economic and Social Affairs. Planning of Metropolitan Areas and New Towns. New York, New York: United Nations (No. ST/SOA/65); 1967.	2	2	-	-	-	2	-	-	21	No
21-134	U. S. Department of Housing and Urban Development. Project Agreement Between United States of America and Interstate Land Development Company, Inc. (for St. Charles, Maryland) Washington, D. C.: Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1970.	-	2	-	-	-	-	-	2	21 03	No

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21-139	The Urban Planning Department, The Rust Engineering Co. Nouville: A Pre-Application to the Department of Housing and Urban Development. Birmingham, Alabama: The Urban Planning Department, The Rust Engineering Co.; November 1971.	2	-	-	-	-	1	-	1	21	No
21-148	Willmott, Peter. Evolution of a Community. London: Routledge and Kegan Paul; 1963.	-	2	-	-	-	1	2	-	21 02	No
22-029	Institute for Urban Studies. University of Pennsylvania. Accelerated Growth in a Metropolitan Fringe Area. Philadelphia, Pennsylvania: University of Pennsylvania; 1954 (2 volumes).	-	2	-	-	-	2	2	2	22 12	No
22-058	Runnels & Roessler. Kansas City International Airport and Vicinity Development Plan. Kansas City, Missouri: Runnels & Roessler, Environmental Associates; 1970.	-	3	-	-	-	-	3	3	22 04	Yes
23-002	Christen, Francois G. Citizen Preference for Home, Neighborhood, and City in Santa Clara County. Santa Monica, California: The Rand Corporation; March 1, 1973.	-	2	-	2	3	2	-	-	23	Yes
23-003	Cullengworth, J. B. "Housing Preferences". Town & Country Planning, vol. 33:5 (May 1965), pp. 215-217.	-	1	-	-	-	1	-	-	23	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
23-004	Diaso, Robert J. et. al. Perception of the Housing Environment: A Comparison of Racial and Density Preferences. Pittsburgh: University of Pittsburgh Graduate School of Public and International Affairs; 1971.	-	1	-	3	-	2	1	-	23	No
23-005	Foote, Nelson N. et. al. Housing Choices and Housing Constraints. New York: McGraw-Hill Book Company, Inc.; 1960.	1	1	1	-	-	2	-	-	23	No
23-006	Highway Research Board. Moving Behavior and Residential Choice. Washington, D.C.: Highway Research Board, National Cooperative Highway Research Program, Report No. 81; 1969.	2	2	2	2	-	2	-	2	23	Yes
23-008	Hinshaw, Mark and Kathryn Allott. "Environmental Preferences of Future Housing Consumers". Journal of the American Institute of Planners, vol. 38:2 (March 1972), pp. 102-107.	-	2	-	-	-	2	-	2	23	Yes
23-009	Lansing, John B. et. al. Residential Location and Urban Mobility. Ann Arbor: Institute for Social Research, The University of Michigan; 1964.	-	-	-	-	-	2	-	2	23	Yes
23-010	Lansing, John B. and Eva Mueller. "Residential Location and Urban Mobility". Highway Research Record No. 106; Washington, D.C.: Highway Research Board; pp. 77-96.	-	-	-	-	-	2	-	2	23 13	Yes
23-012	Menchik, Mark D. Residential Environmental Preferences and Choice: Some Preliminary Empirical Results Relevant to Urban Form. Philadelphia: Regional Science Research Institute, Discussion Paper Series No. 46; 1971.	-	2	-	-	-	2	2	3	23	Yes
23-016	Urban Land Institute. "The Tenants' Point of View". Urban Land, vol. 29:2 (February 1970), pp. 3-8.	2	-	3	1	2	2	-	-	23	Yes
23-018	Weiss, Shirley et. al. Residential Developer Decisions: A Focused View of the Urban Growth Process. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; 1966.	-	2	-	2	-	2	-	1	23	Yes
23-020	Wilmott, Peter. "Housing in Cumbernould: Some Residents Opinions". Journal of the Town Planning Institute; May 1964.	-	2	-	-	-	1	-	-	23	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
23-023	Norcross, Carl. Townhouses and Condominiums: A Survey of Residents' Likes and Dislikes. Washington, D.C.: Urban Land Institute; 1973.	-	-	3	-	-	3	2	2	23	Yes
23-024	Real Estate Research Corporation. Market Analysis, Cluster Housing, Houston, Texas. Houston: RERC; 1972.	-	2	-	-	-	2	2	2	23	Yes
23-025	Thibeault, Russell W. et. al. "Accessibility, Satisfaction, Income and Residential Mobility." Traffic Quarterly (April 1973), pp. 289-307.	-	1	1	-	-	2	-	-	23	No
23-026	Weiss, Shirley F. Consumer Preferences in Residential Location: A Preliminary Investigation of the Home Purchase Decision. Chapel Hill, North Carolina: Center for Urban and Regional Studies University of North Carolina; 1966.	-	-	1	-	-	2	-	1	23	Yes

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Reference Number	CODE 01: RESIDENTIAL (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-009	Lovelace, Eldridge H. "Control of Urban Expansion: The Lincoln, Nebraska Experience". Journal of the American Institute of Planners, vol. 31:4 (November 1965), pp. 348-351.	2	-	-	-	-	2	2	-	09 11	Yes
20-008	General Services Administration. Public Buildings Service - International Conference on Fire Safety in High-Rise Buildings. Washington, D.C.: U.S. GPO; May 1971.	-	-	-	-	-	-	-	2	20 05	Yes
21-034	De Chiara, Joseph and Lee Koppelman. Planning Design Criteria. New York, New York: Van Nostrand Reinhold Company; 1969.	-	2	2	-	2	-	-	3	21 13	Yes
21-066	Howard County (Maryland) Planning Commission. Howard County: 1985. Howard County, Maryland: Howard County (Maryland) Planning Commission; April 1967.	3	-	-	-	3	-	-	3	21 03	Yes
21-088	McKeever, J. Ross (ed.). The Community Builders Handbook. Washington, D.C.: Urban Land Institute; 1968.	3	3	3	-	-	2	3	3	21 08	Yes
21-096	Milton Keynes Development Corporation. The Plan for Milton Keynes. Vol. 1-2. Milton Keynes, United Kingdom: Milton Keynes Development Corporation; March 1970.	-	2	-	-	2	2	2	-	21 06	No
22-043	Livingston and Blayney, City and Regional Planners. Santa Rosa Optimum Growth Study. Santa Rosa, California: Santa Rosa Planning Department; January 1973.	-	2	-	-	-	2	2	2	22 19	Yes
23-014	Murray, Timothy. "Community Preferences and Open Space Planning. Landscape Architecture (January 1970), pp. 108-110.	-	1	-	-	-	1	-	-	23 02	No

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Reference Number	CODE 02: OPEN SPACE/RECREATION Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-001	American Society of Planning Officials. Standards for Outdoor Recreational Areas. Chicago, Ill.: American Society of Planning Officials; 1965.	2	-	-	1	-	1	-	-	No	Yes
02-002	Baltimore Regional Planning Council. General Development Plan for the Baltimore Region. Baltimore, Md.: Baltimore Region Planning Council; September 1972.	3	-	-	-	-	2	-	-	11 09	Yes
02-003	Bangs, Herbert P. Jr. and Stuart Mahler. "Users of Local Parks". Journal of the American Institute of Planners. vol. 36:5 (September 1970), pp. 330-334.	-	2	-	-	-	-	2	-	No	Yes
02-004	Brazell, E. C. "Comparative Costs for Open Space Communities: Rancho Bernardo Case Study". Land-Use Controls, vol. I:4 (1967), pp. 35-40.	2	-	-	-	-	-	3	3	21	Yes
02-005	California Public Outdoor Recreation Plan Committee. California Public Outdoor Recreation Plan. Part II. California Public Outdoor Recreation Plan Committee; November 1960.	2	-	-	-	-	2	2	2	No	No
02-006	Cicchetti, Charles J. "Outdoor Recreation and Congestion in the United States". Population Resources, and the Environment, Volume 3, Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	3	-	-	2	2	2	-	-	No	Yes
02-007	Cicchetti, Charles J. "Some Economic Issues in Planning Recreation Facilities". Land Economics, vol. 47:1 (February 1971), pp. 14-23.	2	-	-	-	1	1	-	-	No	No
02-008	Committee for the Study of Municipal Costs. Green Areas in Andover: Gain or Loss? Andover, Massachusetts: Committee for the Study of Municipal Costs; 1963.	-	-	-	-	-	1	-	-	23	No
02-009	Creveling, Kenneth H., Jr. "Open Space and Recreation Planning for Municipal Responsibility". Federation Planning Information Report Vol. II:3, Mountainside, New Jersey: New Jersey Federation of Planning Officials; (May 1967).	1	1	1	-	1	-	-	-	No	No
02-010	Dinger, Julius J. "Recreational Real Estate". Urban Land, vol. 29:5 (May 1970), pp. 3-12.	-	-	1	-	-	1	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-011	DuPage County (Illinois) Forest Preserve Commission. Land Acquisition Master Plan for the Forest Preserve District, DuPage County. Lombard, Ill.: DuPage County Forest Preserve Commission; 1966.	1	2	-	-	-	2	2	-	No	No
02-012	Gold, Seymour M. "Non-use of Neighborhood Parks". Journal of The American Institute of Planners, vol. 38:6 (November 1972), pp. 369-378.	1	-	-	-	-	1	1	-	No	No
02-013	Grimes, Orville F., Jr. Evaluation of Recreation and Aesthetic Uses of Water in an Urban Setting. Chicago: The University of Chicago, Urban Economics Report No. 36; February 1970.	1	-	-	-	2	2	-	-	No	No
02-014	Hatry, Harry P. and Diana R. Dunn. Measuring the Effectiveness of Local Government Services: Recreation. Washington, D.C.: The Urban Institute; 1971.	-	-	-	-	-	1	-	-	06	No
02-015	Hudson, Duncan G., Jr. "What Price Open Space". Landscape Architecture (January 1970), pp. 110-113.	-	1	-	-	-	1	-	-	No	No
02-016	Kaiser, Edward J. "Natural Landscape and Housing Location Decisions". Landscape Architecture (January 1970), pp. 105-108.	-	-	-	-	-	1	-	-	01 23	No
02-017	Kaminsky, Jacob. Environmental Characteristics Planning: A Concept for Land Use Planning and Land Development Standards. Baltimore: Regional Planning Council. Distributed by NTIS, Springfield, Va.; 1968.	1	1	-	-	3	-	-	-	01	No
02-018	Knetsch, Jack L. "Outdoor Recreation Demands and Benefits". Land Economics, vol. 39:4 (November 1963), pp. 387-396.	-	-	-	-	-	1	-	-	No	No
02-019	Koppelman, Lee Edward. A Plan for Open-Space in Suffolk County. Hauppauge, New York: Suffolk County Planning Commission; 1964.	-	-	-	-	-	2	2	-	No	Yes
02-020	Krasnowiecki, Jan and Ann Louise Strong. "Compensable Regulations for Open Space: A Means of Controlling Urban Growth". Journal of the American Institute of Planners, vol. 29:2 (May 1963), pp. 87-101.	-	-	-	-	-	1	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-021	Lessinger, Jack. The Case for Scatteration". Journal of the American Institute of Planners, vol. 28:3 (August 1962), pp. 159-169.	-	-	-	-	-	2	-	-	No	No
02-022	Little, Charles E. Challenge of the Land. New York, N.Y.: Open Space Action Institute; 1968.	-	1	-	-	-	2	-	-	No	No
02-023	Livingston and Blayney. Open Space vs. Development: Foothills Environmental Design Study. Palo Alto, California: City of Palo Alto Planning Department; February 1971.	-	3	-	-	-	-	3	3	No	Yes
02-024	Louis Berger, Inc. Methodology to Evaluate Socio-economic Benefits of Urban Water Resources. East Orange, New Jersey: Louis Berger, Inc.; 1971.	-	-	-	-	2	-	-	1	23	No
02-025	Mack, Ruth P. and Sumner Myers. "Outdoor Recreation" in Dorfman, Robert (ed.) Measuring the Benefits of Government Investments. Washington, D.C.: The Brookings Institution; 1965.	-	-	-	-	-	2	-	-	No	No
02-026	Metropolitan Area Planning Commission. Preliminary Open Space Plan, Pulaski-Saline Metropolitan Area. Little Rock, Arkansas: Metropolitan Area Planning Commission; 1969.	2	-	-	-	-	1	1	1	No	No
02-027	Mid-America Regional Council. Happiness is a Green Place. Kansas City, Missouri: Mid-America Regional Council; 1972.	2	1	1	-	2	-	3	3	No	Yes
02-028	Miller, John J. B. Open Land in Metropolitan Chicago. Chicago, Illinois: Midwest Open Land Association; 1962.	1	-	-	-	-	-	-	-	No	No
02-029	Moss, Philip I. "Pricing Recreation Services" in Mushkin, Selma (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 335-350.	3	-	-	-	1	-	-	3	No	Yes
02-030	National Association of Homebuilders. Open Space and the Townhouse. Washington, D.C.: National Association of Homebuilders; 1970.	-	-	-	-	-	1	-	-	01	No
02-031	Northam, Ray M. "Vacant Urban Land in the American City". Land Economics, vol. 47:4 (November 1971, pp. 345-355.	-	-	-	-	-	2	1	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-032	Planning Policy Committee of Santa Clara County. An Urban Development / Open Space Plan for Santa Clara County. San Jose, Calif.: Planning Policy Committee of Santa Clara County; September 1972.	-	2	-	-	-	1	-	-	No	Yes
02-033	Platt, Rutherford H. Open Land in Urban Illinois. DeKalb, Illinois: Northern Illinois University Press; 1971.	1	-	-	-	-	-	-	-	06	No
02-034	Portman, M.D. Performance Cost Analysis: Department of Recreation. Columbus, Ohio: Department of Finance; May 1959.	-	2	-	-	-	1	1	2	No	No
02-035	Real Estate Research Corporation. "Economic Analysis of the Foothills Environmental Design Study" in William T. Leonard's Growth Cost Revenue Studies. Berkeley: Associated Home Builders of the Greater East Bay, Inc.; 1972.	-	3	-	-	-	3	3	3	06	Yes
02-036	Recht, Richard J. and Robert J. Harmon. Open Space and the Urban Growth Process. Berkeley, California: Institute of Urban and Regional Development, University of California, Research Report No. 31; 1969.	2	2	-	2	2	2	-	2	No	Yes
02-037	Richard Raymond Association. Study of Recreation Potentialities and Economic Impact-San Mateo County Coastside. Richard Raymond Association; June 1967.	-	2	-	-	1	2	2	2	22	No
02-038	Sessoms, H. Douglas. "New Basis for Recreation Planning". Journal of the American Institute of Planners, vol. 30:1 (February 1964), pp. 26-33.	-	-	-	-	-	1	-	-	No	No
02-039	Southern California Research Council. The New Shape of Southern California 1985. Los Angeles, California: Los Angeles Occidental College; February 1970.	2	-	-	-	-	1	-	-	01 22	No
02-040	Southwestern Pennsylvania Regional Planning Commission. A Regional Planning Study: Regional Open Space. Pittsburgh, Pa.: Pennsylvania Southwestern Regional Planning Commission: November 1966.	2	-	-	-	-	1	2	3	No	No
02-041	Tulsa Metropolitan Area Planning Commission. Tulsa Metropolitan Area Open Space Plan. Tulsa, Oklahoma: Tulsa Metropolitan Area Planning Commission; 1968.	3	3	3	-	-	2	-	2	No	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-042	U. S. Bureau of Outdoor Recreation. Outdoor Recreation Space Standards. Washington, D. C.: U. S. GPO; 1967.	3	3	3	-	-	-	-	2	No	Yes
02-043	U. S. Urban Renewal Administration. Open Space for Urban America. Washington, D. C.: U. S. GPO; 1965.	2	-	-	-	1	1	1	-	No	No
02-044	Wallace, David A. et. al. Metropolitan Open Space and Natural Process. Philadelphia, Pennsylvania: University of Pennsylvania; 1970.	2	-	-	-	-	2	2	-	No	No
02-045	Wennergren, E. Boyd. "Surrogate Pricing of Outdoor Recreation". Land Economics, vol. 43:1 (February 1967), pp. 112-115.	-	-	-	-	-	1	-	-	No	No
02-046	Whyte, William H. The Last Landscape. Garden City, N.Y.: Doubleday & Company, Inc.; 1968.	-	-	-	-	-	1	-	-	21	No
02-047	Wingo, Lowdon et. al. Cities and Space: The Future Use of Urban Land. Baltimore, Maryland: Johns Hopkins Press; 1963.	-	1	-	-	-	-	1	-	No	No
02-048	Wisconsin Bureau of Recreation. Site Evaluation. Wisconsin Bureau of Recreation; 1968.	-	-	-	-	-	-	1	-	No	No
02-049	Whyte, William H. Cluster Development. New York, New York: American Conservation Association; 1964.	-	2	3	-	-	3	2	-	No	Yes

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Reference Number	CODE 02: OPEN SPACE/RECREATION (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-007	Amherst Board of Selectmen. Final Report of the Select Committee on Goals for Amherst. Amherst, Massachusetts: Board of Selectmen; January 29, 1973.	-	-	-	-	-	1	-	-	01 09	No
01-030	Dobriner, W. (ed.) The Suburban Community. New York, New York: G. P. Putnam; 1958.	-	2	-	-	-	1	2	-	01 23	No
01-035	Eckbo, Dean, Austin, and Williams. Cypress Special: The Townscape, Urban Design, Open Space Element of the General Plan. Cypress, California: California Council of Intergovernmental Relations; 1971.	-	2	-	1	-	1	-	-	01 03	No
01-097	Putnam, Robert. "Site Planning and Social Behavior". Journal of Social Issues, vol. 22:4 (1966), pp. 103-115.	-	1	2	-	1	2	-	-	01 23	No
01-151	State of Hawaii, Department of Planning and Economic Development. Central Oahu Planning Study. A Summary Report and four technical supplements. Honolulu, Hawaii. Planning Division, Department of Planning and Economic Development; October 1972.	2	-	-	-	-	2	2	2	01 18	Yes
01-154	Van Alstyne, Carol (ed.) Land Bank Handbook. Greensboro, North Carolina: Piedmont Triad Council of Governments; 1972.	-	3	-	2	-	2	-	2	01	Yes
03-009	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 3-Evaluation of Standards and Criteria. Fairfax, Virginia: Fairfax County Board of Supervisors; August 1972.	3	-	-	-	3	3	3	3	03 09	Yes
21-075	Lansing, John B. et. al. Planned Residential Environments. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 1970.	-	3	3	-	-	2	-	-	21 13	Yes
22-016	Cowan, Peter (ed.) Developing Patterns of Urbanization. Beverly Hills, California: Sage Publications; 1970.	-	-	-	1	-	1	-	1	22 13	No
23-014	Murray, Timothy. "Community Preferences and Open Space Planning." Landscape Architecture (January 1970), pp. 108-110.	-	1	-	-	-	1	-	-	23 01	No

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Reference Number	CODE 02: OPEN SPACE/RECREATION (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-014	Baltimore Regional Planning Council. Environmental Characteristics Planning: An Alternative Approach to Physical Planning. Baltimore: Regional Planning Council; 1972.	1	2	-	1	-	2	-	2	01 08	No
01-024	Chapin, F. Stuart, Jr. Urban Land Use Planning. Second Edition. Urbana, Illinois: University of Illinois Press; 1965.	3	2	-	2	3	-	-	-	01 08	Yes
03-001	Barton-Aschman Associates, Inc. The Barrington, Illinois Area: A Cost-Revenue Analysis of Land Use Alternatives. Chicago: Barrington Area Development Council; 1970.	-	2	-	-	-	3	3	3	03 09	Yes
06-021	International City Management Association. The Municipal Year Book. Washington, D. C.: International City Management Association; (Annual).	-	3	-	-	-	-	-	3	06 05	Yes
06-032	Scott, Claudia Devita. Forecasting Local Government Spending. Washington, D. C.: The Urban Institute; 1972.	1	-	-	2	2	-	1	1	06 05	Yes
08-020	Glen Ellyn Plan Commission. Development Plan: Glen Ellyn, Illinois. Glen Ellyn, Illinois: General Planning and Resource Consultants; May 1971.	-	3	-	-	-	2	3	3	08 03	Yes
21-008	Apartment Construction News. "Land Use Ratios for Big P. U. D. 's". Apartment Construction News, August 1971.	-	2	-	-	-	-	-	1	21 01	Yes
21-148	Willmott, Peter. Evolution of a Community. London: Routledge and Kegan Paul; 1963.	-	2	-	-	-	1	2	-	21 01	No
22-053	Orange County Planning Department. Orange County Population Growth Policy and Development Strategy Study: Phase II Report. Santa Ana, California: Orange County Planning Department; 1972.	2	-	-	-	-	2	2	-	22 13	Yes

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Reference Number	CODE 03: SCHOOLS Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
03-001	Barton-Aschman Associates, Inc. The Barrington, Illinois Area: A Cost-Revenue Analysis of Land Use Alternatives. Chicago: Barrington Area Development Council; 1970.	-	2	-	-	-	3	3	3	09 02	Yes
03-002	Bureau of Municipal Research. Iowa School Building Costs. Des Moines: Bureau of Municipal Research; 1959.	-	-	-	-	-	-	-	1	No	No
03-003	Citizens Budget Commission, Inc. School Construction: Failures and Frustrations. New York, N.Y.: Citizens Budget Commission, Inc.; 1968.	3	-	-	-	-	2	2	2	No	No
03-004	Eastman, Charles M. and Kenneth O. Kartanek. "Modeling School Facility Requirements in New Communities". Management Science, vol. 16:12 (August 1970), pp. B784-B799.	-	1	-	2	-	-	-	-	No	No
03-005	Educational Facilities Laboratories. The Cost of a Schoolhouse. New York, N.Y.: Educational Facilities Laboratories; 1960.	2	2	2	-	-	1	-	2	No	Yes
03-006	Educational Facilities Laboratories. SCSD: The Project and the Schools. New York, N.Y.: Educational Facilities Laboratories; 1967.	3	3	3	-	-	2	-	-	No	No
03-007	Fairfax County Planning Commission. Five Year Countywide Development Program. Vol. I-Presentation of Alternatives. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	3	-	-	3	04 11	Yes
03-008	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 2 - Financial Plan. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	-	-	-	3	06 05	Yes
03-009	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 3-Evaluation of Standards and Criteria. Fairfax, Virginia: Fairfax County Board of Supervisors; August 1972.	3	-	-	-	3	3	3	3	02 09	Yes
03-010	Holley, Paul. School Enrollment by Housing Type. Chicago, Ill.: American Society of Planning Officials; 1966.	-	-	-	-	1	1	-	2	No	Yes

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Reference Number	CODE 03: SCHOOLS (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
03-011	Katzman, Martin T. "Pricing Primary and Secondary Education" in Mushkin, Selma (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 371-394.	1	1	-	-	-	1	-	-	06	No
03-012	Madison-Madison-International Architects-Engineers-Planners. Community Facilities - Adequacy Standards and Cost Estimates. Washington, D.C.: Madison-Madison-International Architects-Engineers-Planners; (undated).	-	2	-	-	-	3	-	3	04 05	Yes
03-013	Meier, Richard L. Developmental Planning. New York: McGraw-Hill; 1965.	1	1	1	-	1	1	-	-	No	No
03-014	Public Expenditure Survey of Wisconsin. School Construction Costs in Wisconsin 1959-1966. Madison, Wisconsin: Public Expenditure Survey of Wisconsin; 1966.	-	3	3	-	-	2	-	2	No	No
03-015	Sacks, Seymour, and David C. Ranney. "Suburban Education: A Fiscal Analysis". Urban Affairs Quarterly, vol. 2:1 (September 1966), pp. 103-119.	1	2	-	-	-	1	-	-	No	No
03-016	Sternlieb, George. The Garden Apartment Development: A Municipal Cost-Revenue Analysis. New Brunswick, N.J.: Bureau of Economic Research, Rutgers University; 1964.	-	2	-	-	2	2	-	2	01 06	Yes
03-017	Westchester County Department of Planning. School Taxes and Residential Development. White Plains, N.Y.: Westchester County Department of Planning; 1971.	-	2	-	-	-	2	2	-	No	Yes
03-018	Wheaton, William L. and Morton Schussheim. The Cost of Municipal Services in Residential Areas. Washington, D.C.: U.S. GPO; 1956.	-	3	-	-	-	3	2	1	13 05	Yes
03-019	U.S. Department of Health, Education and Welfare, National Center for Educational Statistics. Statistics of Local Public School Systems, 1968-1969: Finances. Washington, D.C.: U.S. GPO; June 1971.	3	3	3	-	-	3	-	3	No	Yes
03-020	American Association of School Administrators. Open Space Schools. Washington, D.C.: American Association of School Administrators; 1971.	-	-	-	-	-	1	-	-	No	No
03-021	Council of Educational Facilities Planners. Guide for Planning Educational Facilities. Columbus, Ohio: Council of Educational Facilities Planners; 1972.	-	3	3	-	-	-	-	3	No	Yes

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Reference Number	CODE 03: SCHOOLS (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
03-022	Graves, Ben E. "School Modernization". Nations Schools, vol. 91:1 (January 1973), pp. 74-75.	2	-	-	-	-	2	-	2	No	No
03-023	School Management. "1972 Cost of Building Index". School Management (September 1972), pp. 19-24.	-	-	-	-	-	-	-	3	No	Yes
03-024	School Management. "How to Use the New Cost of Education Index". School Management. (January 1973), pp. 22-44.	-	-	-	-	-	-	-	3	No	Yes
03-025	Shaw, Jane S. "Ideas from Award Winning Schools". Nations Schools, vol. 91:1 (January 1973), pp. 47-67.	-	-	-	-	-	1	-	3	No	Yes
03-026	U.S. Department of Health, Education and Welfare. Statistics of Public Elementary and Secondary Day Schools-Fall 1971. Washington, D.C.: U.S. GPO; 1971.	1	-	-	-	1	-	-	2	No	Yes

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01-023	Chambers, John W. "Do Single Family Homes Pay Their Way?: Summary and Comment" in Leonard T. William's Growth Cost-Revenue Studies. Berkeley, California: Associated Home Builders of the Greater Eastbay, Inc.; 1972.	2	-	-	-	3	3	2	3	01 09	Yes
01-069	Mace, Ruth L. and Warren J. Wicker. Do Single Family Homes Pay Their Way?: A Comparative Analysis of Costs and Revenues for Public Services. Washington, D.C.: Urban Land Institute, Research Monograph No. 15; 1968.	2	-	1	-	-	3	-	3	01 09	Yes
01-091	Pennsylvania Department of Community Affairs. Standards for Suburban Housing Mix: Bucks County, Pennsylvania. Philadelphia: Fels Center of Government, University of Pennsylvania; 1971.	3	3	3	-	-	3	-	3	01 09	Yes
01-105	St. Louis County Planning Commission. Apartments in St. Louis County. Clayton, Missouri: St. Louis County Council; 1972.	-	-	-	-	-	2	3	-	01	Yes
01-119	Sternlieb, George. "Estimation of School Load and Population" in Housing Development and Municipal Costs, Section I. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	1	1	-	-	2	-	2	01	No
01-125	Stuart, Darwin G. and Robert B. Teska. "Who Pays for What: A Cost-Revenue Analysis of Suburban Land Use Alternatives". Urban Land, vol. 30:3 (March 1971), pp. 3-16.	-	-	-	-	-	2	-	-	01	Yes
01-137	Urban Land Institute. The Effects of Large Lot Size on Residential Development. Washington, D.C.: ULI, Technical Bulletin No. 32; 1958.	-	-	-	-	-	3	-	3	01 09	Yes
01-149	Loewenstein, Louis K. and David W. Walters. Municipal Cost/Revenue Analysis for Planned Unit Developments. Special Report No. 9. Berkeley: Institute of Urban and Regional Development, University of California; 1973.	-	1	-	-	1	-	2	2	01 09	Yes
06-022	Isard, Walter and Robert Coughlin. Municipal Costs and Revenues Resulting from Community Growth. Wellesley, Massachusetts: Chandler-Davis Publishing Co.; 1957.	2	3	-	2	-	3	-	3	06 09	Yes

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Reference Number	CODE 03: SCHOOLS (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-030	Real Estate Research Corporation. Fiscal Impact Models for New Communities. Chicago: Real Estate Research Corporation; 1972.	-	3	-	1	-	-	2	2	06 21	Yes
06-038	U. S. Department of Commerce, Census of Governments. Local Government in Metropolitan Areas: 1967 Census of Governments. Washington, D. C.: U. S. GPO; 1969.	2	-	-	-	-	-	-	3	06	No
06-040	Wainwright and Ramsey, Inc. "Study of the Anticipated Economic Impact Upon the City of Alameda and the Alameda Unified School District Occasioned by the Proposed Harbor Bay Isle Development on Bay Farm Island" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.	-	3	-	-	-	3	3	3	06	Yes
07-015	Hirsch, Werner Z. "Quality of Government Services" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D. C.: Resources for the Future; 1963, pp. 163-179.	-	-	-	-	-	1	-	-	07	No
08-020	Glen Ellyn Plan Commission. Development Plan: Glen Ellyn, Illinois. Glen Ellyn, Illinois: General Planning and Resource Consultants; May 1971.	-	3	-	-	-	2	3	3	08 02	Yes
11-005	Gruen, Gruen & Associates. The Impacts of Growth - An Analytical Framework and Fiscal Example. Berkeley: The California Better Housing Foundation, Inc.; 1972.	-	3	-	-	2	2	3	3	11 15	Yes
21-111	Redfield, Charles, et. al. "The Impact of Levittown on Local Government". Journal of the American Institute of Planners (Summer 1951), pp. 130-141.	-	2	-	-	-	-	2	-	21 03	No
21-019	Burchell, Robert W. and James W. Hughes. Planned Unit Development - New Communities American Style. New Brunswick, New Jersey: Rutgers University; 1972.	-	2	-	-	3	3	-	3	21 06	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 03: SCHOOLS (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-066	Howard County (Maryland) Planning Commission. Howard County: 1985. Howard County, Maryland: Howard County (Maryland) Planning Commission; April 1967.	3	-	-	-	3	-	-	3	21 01	Yes
21-150	Crouch, R. L. and R. E. Weintraub "Cost-Benefit Analysis of a PUD". Urban Land, vol. 32:6 (June 1973), pp. 3-13.	-	2	-	-	3	2	2	2	21 17	Yes
21-151	Educational Facilities Laboratories, Inc. New Towns, New Schools? Working Paper No. 1. New York, New York: November 1972.	-	1	-	-	-	3	-	-	21	Yes
21-152	Educational Facilities Laboratories, Inc. Schools for New Towns. Working Paper No. 2. New York, New York: Educational Facilities Laboratory, Inc.; May 1973.	-	-	-	-	-	3	-	1	21	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 03: SCHOOLS (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-035	Eckbo, Dean, Austin, and Williams. Cypress Special: The Townscape, Urban Design, Open Space Element of the General Plan. Cypress, California: California Council of Intergovernmental Relations; 1971.	-	2	-	1	-	1	-	-	01 02	No
01-040	F. W. Dodge Corporation. Building Cost Calculator and Valuation Guide. New York, New York: McGraw-Hill, Inc.; 1973.	-	-	-	-	-	-	-	3	01 04	Yes
01-043	Glendora, California Planning Commission. Glendora Land Use Plan. Glendora: Glendora, California Planning Commission; 1961.	-	2	-	-	-	1	1	1	01 08	No
01-065	Levy, Stephen and Robert K. Arnold. An Evaluation of Four Growth Alternatives in the City of Milpitas, 1972-1977. Palo Alto, California: Institute of Regional and Urban Studies; August 1972.	-	3	2	-	-	3	3	3	01 08	Yes
01-072	Marshall and Swift Publications. Marshall Valuation Service. Los Angeles, California: Marshall and Swift Publication Company; 1971.	-	-	-	-	-	-	-	3	01 05	Yes
01-130	Triton Foundation, Inc. A Study of a Prototype Floating Community. Cambridge, Massachusetts. Prepared for the Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1968.	-	2	-	-	-	2	2	1	01 08	No
06-028	Metro Metrics, Inc. The Economics of Urban Growth Costs and Benefits of Residential Construction. Washington, D.C.: Metro Metrics, Inc.; 1971.	2	-	-	-	-	3	2	3	06 09	Yes
21-082	Louisville University, Urban Studies Center. An Exploratory Analysis of a New Community and Regional Development Relocation System. Louisville: Urban Studies Center; Report prepared for the Kentucky Office of Program Development for Appalachian Regional Commission; January 1970.	-	3	-	-	-	3	3	-	21 05	Yes
21-134	U. S. Department of Housing and Urban Development. Project Agreement Between United States of America and Interstate Land Development Company, Inc. (for St. Charles, Maryland). Washington, D.C.: Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1970.	-	2	-	-	-	-	-	2	21 01	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 04: HEALTH SERVICES Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
04-001	American Hospital Association. "Hospitals". Journal of the American Hospital Association, vol. 45:15 (August 1971), pp. 445-493.	3	3	-	-	-	3	-	3	No	Yes
04-002	American Medical Association. Areawide Planning: Report of the First National Conference on Areawide Health Facilities Planning. Miami Beach, Fla.: American Medical Association; 1965.	-	-	-	-	-	1	-	-	No	No
04-003	Ault, David E. and Thomas E. Johnson, Jr. "Probabilistic Models Applied to Hospital Planning". Growth and Change, April 1973, pp. 7-13.	2	2	-	2	-	-	-	-	No	No
04-004	Berki, Sylvester E. "The Pricing of Hospital Services" in Mushkin, Selma (ed.) Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 351-370.	1	1	-	-	-	1	-	-	No	No
04-005	Cardwell, Rosson L. "How to Measure Metropolitan Bed Needs". Modern Hospital, vol. 103:2 (August 1964), pp. 107-112.	1	-	-	3	-	-	-	-	No	Yes
04-006	Carr, W. John. Notes on Areawide Hospital Planning. Cambridge, Mass.: Harvard University (unpublished); October 1966.	1	1	-	1	-	-	-	-	No	No
04-007	Frieden, Bernard J. and James Peters. "Urban Planning and Health Services: Opportunities for Cooperation". Journal of the American Institute of Planners, vol. 36:2 (March 1970), pp. 82-95.	1	1	-	-	-	1	-	-	No	No
04-008	Herman, Harold and Mary Elizabeth McKay. Community Health Services. Washington, D. C.: International City Managers Association; 1968.	1	1	1	-	-	1	-	-	No	No
04-009	Iowa State Department of Health. Construction Cost of Hospitals and Related Health Facilities. Des Moines, Iowa. Iowa State Department of Health; 1959.	1	1	-	-	-	3	-	3	No	Yes
04-010	Manvel, Allen D. "Changing Patterns of Local Government Expenditure" in Howard G. Schaller's Public Expenditure Decisions in the Urban Community. Washington, D. C.: Resources for the Future; 1963, pp. 19-36.	-	2	-	-	-	2	-	2	05 09	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 04: HEALTH SERVICES (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
04-011	Nadol, Joanne R. "The Preventive Approach". Columbia Today; March 1970, pp. 22-27.	-	-	-	-	-	1	-	-	No	No
04-012	National Academy of Engineering. Costs of Health Care Facilities. Washington, D. C.: National Academy of Sciences; 1968.	-	-	-	-	1	2	-	-	No	No
04-013	U. S. Department of Health, Education and Welfare, Public Health Service. Statistics for Comprehensive Health Planning. Washington: U. S. GPO; June 1972.	-	1	-	-	-	1	-	1	No	No
04-014	U. S. Public Health Service, Division of Hospital Facilities. Preliminary Estimates of Project Cost. Washington, D. C.: U. S. GPO; 1951.	-	-	-	-	-	-	-	1	No	No
04-015	Hospital Planning Council of Metropolitan Chicago. Space Criteria for Hospital Evaluation. Chicago, Illinois: Hospital Planning Council of Metropolitan Chicago; 1965.	2	-	-	-	-	-	-	3	No	Yes

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Reference Number	CODE 04: HEALTH SERVICES (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-040	F. W. Dodge Corporation. Building Cost Calculator and Valuation Guide. New York, New York: McGraw-Hill, Inc.; 1973.	-	-	-	-	-	-	-	3	01 03	Yes
01-109	Schaenman, Philip et. al. Measurements for Evaluating Land Developments. Washington, D. C.: The Urban Institute; 1972.	-	1	-	-	-	2	2	2	01 08	Yes
03-007	Fairfax County Planning Commission. Five Year Countywide Development Program. Vol. I-Presentation of Alternatives. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	3	-	-	3	03 11	Yes
03-012	Madison-Madison-International Architects-Engineers-Planners. Community Facilities - Adequacy Standards and Cost Estimates. Washington, D. C.: Madison-Madison-International, Architects-Engineers-Planners; (undated).	-	2	-	-	-	3	-	3	03 05	Yes
11-006	Gutheim, Frederick. Requirements for Urban Facilities and Services in Underdeveloped Areas. Washington, D. C.: Frederick Gutheim, Consultant; 1967.	-	-	-	-	2	-	-	-	11 07	No
21-043	Fonaroff, Arlene. "Identifying and Developing Health Services in a New Town". American Journal of Public Health, vol. 60:5 (May 1970), pp. 821-827.	-	3	-	-	-	1	2	-	21	Yes

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Reference Number	CODE 04: HEALTH SERVICES (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-031	Regional Plan Association. Public Services in Older Cities. New York, New York: Regional Plan Association; 1968.	2	-	-	-	-	2	2	2	06 13	Yes
22-058	Runnels & Roessler. Kansas City International Airport and Vicinity Development Plan. Kansas City, Missouri: Runnels & Roessler, Environmental Associates; 1970.	-	3	-	-	-	-	3	3	22 01	Yes

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Reference Number	CODE 05: POLICE AND FIRE SERVICES Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
05-001	Columbia Today. "The Volunteer Firemen". Columbia Today (November 1970), pp. 20-22.	-	2	-	-	-	-	-	1	21	No
05-002	Gabler, L. R. "Economies and Diseconomies of Scale in Urban Public Sectors". Land Economics, vol. 45:4 (November 1969), pp. 425-434.	-	2	-	1	-	3	-	2	09	Yes
05-004	National Board of Fire Underwriters. "Fire Department Standards--Distribution of Companies and Response to Alarms". National Board of Fire Underwriters, Special Interest Bulletin No. 315. New York: American Insurance Association; January 1963.	1	1	-	-	-	2	-	2	No	Yes
05-005	National Board of Fire Underwriters. "Fire Department Stations--Planning the Building". National Board of Fire Underwriters, Special Interest Bulletin No. 175; New York: American Insurance Association; March 1959.	-	-	-	-	-	-	-	1	No	No
05-006	National Board of Fire Underwriters. "Fire Department Stations--Planning the Location". National Board of Fire Underwriters, Special Interest Bulletin No. 176. New York: American Insurance Association; February 1963.	1	1	-	-	-	-	-	2	No	Yes
05-007	National Board of Fire Underwriters. "Water Distribution System on Engineering". National Board of Fire Underwriters, Special Interest Bulletin No. 258. New York: American Insurance Association; December 31, 1947.	1	1	-	-	-	-	-	2	No	Yes
05-008	National Board of Fire Underwriters. "Water Supply for Municipal Fire Fighting". National Board of Fire Underwriters, Special Interest Bulletin No. 116. New York: American Insurance Association; September 20, 1951.	-	-	-	-	-	1	-	1	No	No
05-009	National Board of Fire Underwriters. "Water Works Requirements for Fire Protection". National Board of Fire Underwriters, Special Interest Bulletin No. 116. New York: American Insurance Association; September 20, 1951.	-	-	-	1	-	-	-	-	No	No

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Reference Number	CODE 05: POLICE AND FIRE SERVICES (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
05-010	NFDA Fire Service Department. Fire Service Directory, Third Edition. Boston: National Fire Protection Association; 1970-1971.	2	-	-	-	-	2	-	2	No	Yes
05-011	Pollak, William. "Pricing Fire Protection Services" in Mushkin, Selma (ed.) Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 307-334.	1	-	-	1	1	-	-	-	No	No
05-012	Vickrey, William W. "General and Specific Financing of Urban Services" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D. C.: Resources for the Future; 1963, pp. 62-90.	-	-	-	2	-	1	-	-	10 13	No
05-013	International City Management Association. Municipal Police Administration. Washington, D. C.: International City Management Association; 1969.	2	2	-	-	-	3	-	-	No	No
05-014	Kimball, Warren Y. How to Judge Your Fire Department. Boston, Massachusetts: National Fire Protection Association; 1972.	-	-	-	-	-	2	-	-	No	Yes
05-015	National League of Cities. The Grading of Municipal Fire Protection Facilities: Its Relationship to Fire Insurance and to the Municipality's Fire Protection Policy. Washington, D. C.: National League of Cities; July 1967.	1	1	-	-	-	2	-	2	No	Yes
05-016	Tryon, George H. and Gordon P. McKinnon. Fire Protection Handbook: Thirteenth Edition. Boston, Massachusetts: National Fire Protection Association; 1969.	-	-	-	-	-	2	-	2	No	Yes
05-017	U. S. Department of Labor, Manpower Administration. Manpower Implications of New Legislation and New Federal Programs. Washington, D. C.: U. S. Department of Labor, Manpower Administration; April 1971.	1	1	1	-	-	-	-	2	06	Yes
05-018	Vogel, Joshua H. Police Stations Planning and Specifications. Seattle, Washington: Bureau of Governmental Research and Services; 1954.	1	1	-	-	-	2	-	2	No	Yes
05-019	Wilson, O. W. and Roy Clinton McLaren. Police Administration. Third Edition. New York, New York: McGraw Hill Book Company; 1972.	-	2	-	-	-	2	-	-	No	No

GENERAL BIBLIOGRAPHY

Reference Number	CODE 05: POLICE AND FIRE SERVICES (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
05-020	Wilson, James Q. Varieties of Police Behavior. Cambridge, Massachusetts: Harvard University Press; 1968.	-	3	2	-	-	3	3	2	No	Yes
05-021	U. S. Department of Justice. Federal Bureau of Investigation. Uniform Crime Reports for the United States. Washington, D. C.: Department of Justice; 1971.	3	3	3	-	-	1	1	3	20	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 05: POLICE AND FIRE SERVICES (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-072	Marshall and Swift Publications. Marshall Valuation Service. Los Angeles: Marshall and Swift Publication Company; 1971.	-	-	-	-	-	-	-	3	01 03	Yes
01-114	Sonoma County Planning Department. Restoring the Future Toward New Public Calculus - 1972. Santa Rosa, California: Sonoma County Planning Department; 1972.	-	2	-	-	2	2	2	2	01	No
04-010	Manvel, Allen D. "Changing Patterns of Local Government Expenditure" in Howard G. Schaller's Public Expenditure Decisions in the Urban Community. Washington, D. C.: Resources for the Future; 1963, pp. 19-36.	-	2	-	-	-	2	-	2	04 09	No
06-013	English, John Christopher. The Impact of Land Use Patterns on Public Service Expenditures in the Twin Cities Metropolitan Area. St. Paul, Minnesota: University of Minnesota, PhD dissertation (unpublished); 1967.	1	-	-	-	-	2	2	2	06 13	Yes
06-021	International City Management Association. The Municipal Year Book. Washington, D. C.: International City Management Association; (Annual).	-	3	-	-	-	-	-	3	06 02	Yes
06-023	Lamm, Richard D. "Local Growth: Focus of a Changing American Value". Equilibrium, January 1973.	2	2	2	-	-	-	-	2	06	No
06-032	Scott, Claudia Devita. Forecasting Local Government Spending. Washington, D. C.: The Urban Institute; 1972.	1	-	-	2	2	-	1	1	06 02	Yes
06-048	McCallum, David Livingston. Case Study of the Cost of Government Activities. Chapel Hill, North Carolina: University of North Carolina; 1956.	-	2	-	-	-	2	-	2	06	Yes
09-013	Robert Snow Means Company, Inc. Building Construction Cost Data: 1973. Duxbury, Massachusetts: Robert Snow Means Company, Inc.; 1973.	-	-	-	-	-	-	-	3	09 06	Yes
09-017	Sternlieb, George. "Evaluation of Municipal Services" in Housing Development and Municipal Costs, Section III. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	3	-	-	-	3	-	3	09 23	Yes

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Reference Number	CODE 05: POLICE AND FIRE SERVICES (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
20-015	Rolf Jensen and Associates. A Study of the Fire Problem in Residential High Rise Buildings. Northfield, Illinois: Rolf Jensen and Associates, Inc.; February 25, 1972.	-	-	-	-	-	2	-	2	20 01	Yes
20-008	General Services Administration. Public Buildings Service - International Conference on Fire Safety in High-Rise Buildings. Washington, D.C.: U.S. GPO; May 1971.	-	-	-	-	-	-	-	2	20 01	Yes
21-082	Louisville University, Urban Studies Center. An Exploratory Analysis of a New Community & Regional Development Relocation System. Louisville: Urban Studies Center; Report prepared for the Kentucky Office of Program Development for Appalachian Regional Commission; January 1970.	-	3	-	-	-	3	3	-	21 03	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 05: FIRE AND POLICE (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-107	Santa Clara (California) County Planning Department. "The Costs and Revenues of Local Housing Development" in William Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.	-	3	-	-	3	3	-	3	01 06	Yes
03-008	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 2 - Financial Plan. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	-	-	-	3	03 06	Yes
03-012	Madison-Madison-International Architects-Engineers-Planners. Community Facilities - Adequacy Standards and Cost Estimates. Washington, D.C.: Madison-Madison-International, Architects-Engineers-Planners; (undated).	-	2	-	-	-	3	-	3	03 04	Yes
03-018	Wheaton, William L. and Morton Schussheim. The Cost of Municipal Services in Residential Areas. Washington, D.C.: U.S. GPO; 1956.	-	3	-	-	-	3	2	1	03 13	Yes
06-006	Bahl, Roy M. Metropolitan City Expenditures. Lexington, Kentucky: University of Kentucky Press; 1969.	3	-	-	-	1	2	-	-	06 01	No

GENERAL BIBLIOGRAPHY

CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION
Classification: Primary

Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-001	Adams, Robert F. "On the Variation in the Consumption of Public Services" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, N.Y.: Macmillan Co.; 1972, pp. 504-512.	1	-	-	-	-	1	-	-	No	No
06-002	Advisory Commission on Intergovernmental Regulations. Fiscal Balance in the American Federal System. Vol. 2. Metropolitan Fiscal Disparities. Washington, D.C.: U.S. GPO; 1967.	2	-	-	-	-	2	1	1	No	No
06-003	Alesch, D. J. and L. A. Dougharty. Economies of Scale in State and Local Government. Prepared for the State of California Council on Intergovernmental Relations. Santa Monica: The Rand Corporation; 1971.	1	-	-	-	-	-	1	1	No	Yes
06-004	Alesch, D. J. and Dougharty, L. A. The Feasibility of Economies of Scale Analysis of Public Services. Prepared for the Council on Intergovernmental Relations, State of California. Santa Monica: The Rand Corporation; 1971.	2	-	-	-	-	1	-	-	No	No
06-005	Ashley, Thomas J. "Cost-Revenue Analysis of New Housing Development in the City of San Diego" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, Calif.: Associated Home-Builders of the Greater Eastbay, Inc.; November 1972.	2	-	-	-	2	3	2	2	13 11	Yes
06-006	Bahl, Roy M. Metropolitan City Expenditures. Lexington, Kentucky: University of Kentucky Press; 1969.	3	-	-	-	1	2	-	-	01 05	No
06-007	Bish, Robert L. The Public Economy of Metropolitan Areas. Chicago, Ill.: Markham Publishing Co.; 1971.	1	-	-	-	1	1	-	-	No	No
06-008	Broady, Maurice. Planning for People. London: National Council of Social Service; 1968.	3	2	-	-	2	-	-	-	No	No
06-009	Burch, W. R. "The Nature of Community and a Case Analysis of Failure" in John Forster's (ed.) Social Process in New Zealand. Auchland: Longman Paul Ltd.; 1969.	-	3	2	-	-	2	-	-	23	No
06-010	City of Milpitas, Planning Department. City of Milpitas: History and Evaluation of the 1971-72 Local Government Structure Study. Milpitas, Calif.: City of Milpitas, Planning Department; 1972.	-	-	-	-	2	-	2	2	01	Yes

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Reference Number	CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-011	County of Santa Clara Planning Department. 1971 Annual Report of the Planning Policy Committee of Santa Clara County. San Jose, California: County of Santa Clara Planning Department; 1972.	-	1	-	2	-	-	-	-	No	No
06-012	County of Santa Clara Planning Department. Policy for Planning. San Jose, Calif.: County of Santa Clara Planning Department; July 1965.	-	2	-	1	-	-	1	-	No	No
06-013	English, John Christopher. The Impact of Land Use Patterns on Public Service Expenditures in the Twin Cities Metropolitan Area. St. Paul, Minnesota: University of Minnesota, PhD dissertation (unpublished); 1967.	1	-	-	-	-	2	2	2	05 13	Yes
06-014	Fisher, Glen W. "Determinants of State and Local Government Expenditures". National Tax Journal; March 1964.	-	1	-	1	-	-	-	-	No	No
06-015	Gabler, L. R. "Population Size as a Determinant of City Expenditures and Employment -- Some Further Evidence". Land Economics, vol. 47:2 (May 1971), pp. 130-138.	-	-	-	-	-	1	-	-	No	No
06-016	Good, David A. Cost-Benefit and Cost Effectiveness Analysis: Their Application to Urban Public Services and Facilities. Philadelphia, Pennsylvania: Regional Science Research Institute; 1971.	-	-	-	1	-	1	-	-	No	No
06-017	Hirsch, Werner Z. The Economics of State and Local Government. Los Angeles: McGraw-Hill; 1970.	2	-	-	1	-	1	-	1	No	No
06-018	Hirsch, Werner Z. "Local vs. Areawide Urban Government Service". National Tax Journal, vol. 42:4 (December 1964), pp. 331-339.	-	1	-	-	-	1	-	-	No	No
06-019	Hirsch, Werner Z. "The Supply of Urban Public Services" in Perloff and Wingo (eds.) Issues in Urban Economics. Baltimore: Johns Hopkins Press; 1968, pp. 477-525.	2	2	-	-	2	2	-	-	No	Yes
06-020	Howard, William A. "City Size and Its Relationship to Municipal Efficiency: Some Observations and Questions". Ekistics (November 1969), pp. 312-315.	-	-	-	-	-	1	-	-	No	No
06-021	International City Management Association. The Municipal Year Book. Washington, D.C.: International City Management Association; (Annual).	-	3	-	-	-	-	-	3	05 02	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-022	Isard, Walter and Robert Coughlin. Municipal Costs and Revenues Resulting from Community Growth. Wellesley, Mass.: Chandler-Davis Publishing Co.; 1957.	2	3	-	2	-	3	-	3	03 09	Yes
06-023	Lamm, Richard D. "Local Growth: Focus of a Changing American Value". Equilibrium; January 1973.	2	2	2	-	-	-	-	2	05	No
06-024	Leven, Charles L. "A Framework for the Evaluation of Secondary Impacts of Public Investment". American Journal of Agricultural Economy (December 1970), pp. 723-732.	-	-	-	1	-	-	-	-	No	No
06-025	Lichfield, Nathaniel. "Spatial Externalities in Urban Public Expenditures: A Case Study". in Julius Margolis' (ed.) The Public Economy of Urban Communities. Baltimore: The Johns Hopkins Press; 1964.	-	2	-	1	-	2	2	-	No	No
06-026	Lichfield, Nathaniel and Julius Margolis. "Benefit-Cost Analysis as a Tool in Urban Government Decision Making" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D. C.: Resources for the Future; 1963, pp. 118-146.	-	-	-	2	-	-	-	-	No	No
06-027	Mace, Ruth L. Municipal Cost - Revenue Research in the United States. Chapel Hill, No. Carolina: The Institute of Government; 1961.	2	-	-	2	2	2	-	2	No	Yes
06-028	Metro Metrics, Inc. The Economics of Urban Growth: Costs and Benefits of Residential Construction. Washington, D. C.: Metro Metrics, Inc.; 1971.	2	-	-	-	-	3	2	3	09 03	Yes
06-029	Mills, Edwin S. "Urban Density Functions". Urban Studies, vol. 7 (February 1970), pp. 5-20.	-	-	-	-	-	1	-	-	No	No
06-030	Real Estate Research Corporation. Fiscal Impact Models for New Communities. Chicago: Real Estate Research Corporation; 1972.	-	3	-	1	-	-	2	2	03 21	Yes
06-031	Regional Plan Association. Public Services in Older Cities. New York: Regional Plan Association; 1968.	2	-	-	-	-	2	2	2	13 04	Yes
06-032	Scott, Claudia Devita. Forecasting Local Government Spending. Washington, D. C.: The Urban Institute; 1972.	1	-	-	2	2	-	1	1	05 02	Yes

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Reference Number	CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
06-033	Scott, Stanley (ed.) The San Francisco Bay Area: Its Problems and Future. 2 vols. Berkeley: University of California, Institute of Governmental Studies; 1966.	1	-	-	-	-	1	-	-	No	No
06-034	Shoup, Donald C. and Ruth P. Mack. Advance Land Acquisition by Local Governments. New York: Institute of Public Administration; 1968.	-	1	-	-	-	2	-	-	21	No
06-035	Stocks, Anthony H. Considerations of Scale in Providing State and Local Public Goods. Morgantown, West Virginia: West Virginia University Business and Economic Studies; 1968.	2	-	-	-	-	2	-	2	No	No
06-036	Thompson, Wilbur R. A Preface to Urban Economics. Baltimore: Johns Hopkins Press; 1965.	2	2	-	-	-	2	-	-	01	Yes
06-037	U.S. Department of Commerce, Bureau of the Census. Local Government Finances in Selected Metropolitan Areas and Large Counties: 1969-70. Washington, D.C.: U.S. GPO; 1971.	3	-	-	-	-	-	-	2	No	Yes
06-038	U.S. Department of Commerce, Census of Governments. Local Government in Metropolitan Areas: 1967 Census of Governments. Washington, D.C. U.S. GPO; 1969.	2	-	-	-	-	-	-	3	03	No
06-039	Urban Land Research Analysts Corporation. Some Relevant Considerations for Metropolitan Fiscal Policy. Lexington, Massachusetts: Urban Land Research Analysts Corporation. Prepared for the Department of Housing and Urban Development. Distributed by NTIS, Springfield, Va.; 1970.	-	-	-	1	-	2	2	-	No	No
06-040	Wainwright and Ramsey, Inc. "Study of the Anticipated Economic Impact upon the City of Alameda and the Alameda Unified School District Occasioned by the Proposed Harbor Bay Isle Development on Bay Farm Island" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, Calif.: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.	-	3	-	-	-	3	3	3	03	Yes
06-041	Warren, Robert. "A Municipal Services Market Model of Metropolitan Organization". Journal of the American Institute of Planners, vol. 30:3 (August 1964), pp. 193-203.	2	-	-	2	-	2	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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06-043	Washnis, George J. Neighborhood Facilities and Municipal Decentralization - Volume II. Case Studies of Twelve Cities. Washington, D. C.: Center for Governmental Studies; March 1971.	2	-	1	-	-	-	1	-	No	No
06-044	Wheaton, William. "Applications of Cost-Revenue Studies to Fringe Areas". Journal of the American Institute of Planners (November 1959), pp. 170-174.	-	-	-	-	-	2	-	-	No	Yes
06-045	Wheaton, William L. C. "Metro-Allocation Planning". Journal of the American Institute of Planners, vol. 33:2 (March 1967), pp. 103-107.	1	-	-	-	-	1	-	-	No	No
06-046	Williams, Oliver P. et. al. Suburban Differences and Metropolitan Policies: A Philadelphia Short Story, Philadelphia: University of Pennsylvania Press; 1965.	2	-	-	2	2	2	2	2	No	No
06-047	Wingo, Lowdon (ed.) Metropolitanization and Public Services. Washington: Resources For the Future, Series on the Governance of Metropolitan Regions No. 3; 1972.	1	-	-	-	-	1	-	-	No	No
06-048	McCallum, David Livingston. Case Study of the Cost of Government Activities. Chapel Hill, North Carolina: University of North Carolina; 1956.	-	2	-	-	-	2	-	2	05	Yes
06-049	San Diego Joint City/County Economic Analysis Project. The Economics of Urbanization. Phase 1 - Final Report. San Diego, California: City and County Joint Task Force; 1973.	3	3	-	-	3	-	-	2	No	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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01-015	Baltimore Regional Planning Council. Environmental Characteristics Planning: Financial Models. Baltimore: Regional Planning Council; 1972.	1	2	-	2	2	-	3	3	01 13	No
01-017	Bosselman, Fred P. Alternatives to Urban Sprawl: Legal Guidelines for Governmental Action. Prepared for the consideration of the National Commission on Urban Problems. Research Report No. 15. Washington, D.C.: U.S. GPO; 1968.	-	1	-	-	-	2	-	-	01	Yes
01-054	International City Managers' Association. Apartments in the Suburbs. Washington, D.C.: Management Information Service Report No. 245; 1964.	-	-	-	-	2	-	-	2	01	Yes
01-079	Mid-Willamette Valley Council of Governments. The Costs of Urban Growth for the Salem, Oregon Area. Salem, Oregon: Growth Policies No. 4; July 1972.	3	-	-	-	-	2	2	1	01 23	No
01-104	Sagalyn, Lynne B. and George Sternlieb. Zoning and Housing Costs. Rutgers University, The State University of New Jersey, 1972.	-	1	-	-	-	2	-	-	01	No
01-107	Santa Clara (California) County Planning Department. "The Costs and Revenues of Local Housing Development" in William Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.	-	3	-	-	3	3	-	3	01 05	Yes
01-112	Smith, Wallace F. Housing: The Social and Economic Elements. Berkeley: The University of California Press; 1970.	-	2	-	1	-	1	-	-	01 23	No
01-140	Urban Studies Center. Community Development Fiscal Management Computer Model. Louisville, Kentucky: Urban Studies Center, University of Louisville; February 1973.	-	2	-	2	-	-	-	-	01	No
01-150	San Francisco Planning and Urban Renewal Association. Impact of Intensive High-Rise Development in San Francisco: Step One - Part B, A Final Feasibility Report. San Francisco: SPUR; 1972.	-	3	-	-	2	2	-	2	01 22	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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02-033	Platt, Rutherford H. Open Land in Urban Illinois. DeKalb, Illinois: Northern Illinois University Press; 1971.	1	-	-	-	-	-	-	-	02	No
02-035	Real Estate Research Corporation. "Economic Analysis of the Foothills Environmental Design Study" in William T. Leonard's Growth Cost Revenue Studies. Berkeley: Associated Home Builders of the Greater East Bay, Inc.; 1972.	-	3	-	-	-	3	3	3	02	Yes
03-008	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 2 - Financial Plan. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	-	-	-	3	03 05	Yes
03-011	Katzman, Martin T. "Pricing Primary and Secondary Education" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 371-394.	1	1	-	-	-	1	-	-	03	No
05-017	U.S. Department of Labor, Manpower Administration. Manpower Implications of New Legislation and New Federal Programs. Washington, D.C.: U.S. Department of Labor, Manpower Administration; April 1971.	-	1	1	-	-	-	-	2	05	Yes
14-018	U.S. Congress (91st, Second Session). Environmental Effects of Producing Electric Power. Hearings Before the Joint Committee on Atomic Energy - January and February 1970. Washington, D.C.: U.S. GPO; 1970.	-	-	-	-	-	1	-	-	14	No
15-002	Association of State and Interstate Water Pollution Control Administrators. Summary of Proceedings: Annual Meeting of Association of State and Interstate Water Pollution Control Administrators. Kansas City, Missouri: Association of State and Interstate Water Pollution Control Administrators; 1969.	-	-	-	-	-	1	-	-	15	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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15-041	State of New Jersey. County and Municipal Government Study Commission. Water Quality Management: New Jersey's Vanishing Options. Trenton, New Jersey: County and Municipal Government Study Commission; March 1973.	3	2	-	2	-	-	2	2	15 21	Yes
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21-021	Business Week. "New Towns Rise on the Hill". Business Week, February 7, 1970, pp. 96-77.	-	1	-	-	-	-	-	-	21	No
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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-096	Milton Keynes Development Corporation. The Plan for Milton Keynes. Vol. 1-2. Milton Keynes, United Kingdom: Milton Keynes Development Corporation; March 1970.	-	2	-	-	2	2	2	-	21 01	No
21-102	Nunn, Douglas. Newcom: Volume III-The Physical Environment. Louisville, Kentucky: The Urban Studies Center, University of Louisville; November 1971.	2	2	-	2	-	-	2	2	21 11	Yes
21-109	Prokosch, Walther. "Joppatowne: A Marine-Oriented Community in Maryland". Urban Land, vol. 24:6 (June 1965), pp. 7-11.	-	1	-	-	-	-	2	-	21 13	No
21-113	Robinson, William K. "Kingswood: A Recreation Oriented Community in Ohio". Urban Land, vol. 24:6 (June 1965), pp. 3-6.	-	1	-	-	-	-	1	-	21	No
21-116	Savings & Loan News. "Balancing Profit and the Environment: Three PUDS Show the Way". Savings & Loan News (February 1973), pp. 56-63.	-	3	-	-	-	-	3	3	21 13	Yes
21-117	Scott, Stanley. Local Government for Large New Communities. Berkeley, California: Institute of Governmental Studies; 1965.	1	-	-	-	-	1	-	-	21 13	No
21-119	Smith, Douglas C. New Communities & Transportation. Washington, D. C.: Highway Users Federation, Transportation Development Division; May 1972.	-	-	-	-	-	1	-	-	21	No
21-122	Steinetz, Carl. "Meaning and Congruence of Urban Form and Activity". Journal of the American Institute of Planners, vol. 34 (July 1968); pp. 233-248.	1	-	-	-	-	1	-	-	21	No
21-123	Strong, Ann Louise. Planned Urban Environments: Sweden, Finland, Israel, The Netherlands, France. Baltimore, Maryland: The Johns Hopkins Press; 1971.	2	2	-	-	-	2	2	-	21 22	No
21-124	Sunderland, Lowell. "How Columbia Manages Its Amenities While Gearing for Public Control". Columbia Today (March 1971), pp. 11-14.	-	2	-	-	-	2	-	-	21	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-136	University of Minnesota/Experimental City Project. Minnesota Experimental City: Volume 2-Economic and Physical Aspects. Minneapolis, Minnesota: Univ rsity of Minnesota; 1969.	3	-	-	-	2	-	-	-	21 13	No
21-137	Urban Land Institute. "How Do You Like Living in a Planned Community?" Urban Land, vol. 31:1 (January 1972), pp. 3-13.	-	2	-	-	-	3	3	-	21	Yes
21-142	Von Eckardt, Wolf. "A Fresh Scene in the Clean Dream". Saturday Review (May 15, 1971), pp. 21-23.	-	1	-	-	-	1	-	-	21	No
22-007	Barton-Aschman Associates, Inc. The Barrington, Illinois Area: Evaluation of Growth and Governmental Alternatives. Prepared for the Barrington Area Development Council. Chicago: Barton-Aschman Associates; 1970.	-	2	-	-	-	2	2	2	22	Yes
22-012	Commission on Population Growth and the American Future. Population and The American Future. Washington, D.C.: U.S. GPO; 1972.	-	-	-	-	-	1	-	1	22	No

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Reference Number	CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-055	International Conference of Building Officials. Uniform Building Code. Pasadena, California: ICBO; 1967.	-	-	-	-	-	-	-	2	01 20	Yes
01-063	Leven, Charles L. Changing Sizes, Forms, and Functions of Urban Areas. St. Louis, Missouri: Institute for Urban and Regional Studies, Washington University; February 1972.	2	-	-	-	-	2	-	-	01 13	No
03-016	Sternlieb, George. The Garden Apartment Development: A Municipal Cost-Revenue Analysis. New Brunswick, New Jersey: Bureau of Economic Research, Rutgers University; 1964.	-	2	-	-	2	2	-	2	03 01	Yes
09-002	Downing, Paul B. The Economics of Urban Sewage Disposal. New York, New York: Frederick A. Praeger, Inc.; 1969.	-	-	-	2	-	2	-	-	09 07	Yes
09-013	Robert Snow Means Company, Inc. Building Construction Cost Data: 1973. Duxbury, Massachusetts: Robert Snow Means Company, Inc.; 1973.	-	-	-	-	-	-	-	3	09 05	Yes
15-030	Pitts, Henry L. "Tax Relief for Pollution Control". Commerce (February 1969), p. 18.	-	-	-	-	-	1	-	-	15 17	No
21-019	Burchell, Robert W. and James W. Hughes. Planned Unit Development-New Communities American Style. New Brunswick, New Jersey: Rutgers University; 1972.	-	2	-	-	3	3	-	3	21 03	Yes
21-111	Redfield, Charles, et. al. "The Impact of Levittown on Local Government". Journal of the American Institute of Planners (Summer 1951), pp. 130-141.	-	2	-	-	-	-	2	-	21 03	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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07-002	Clark, Robert M. and Richard O. Toftner. "Land Use Planning and Solid Waste Management". Public Works, vol. 103:3 (March 1972), pp. 79-80.	2	-	-	-	2	2	-	2	No	No
07-003	Committee on Solid Wastes American Public Works Association. Refuse Collection Practice. Chicago, Illinois: Public Administration Service; 1966.	3	-	-	-	-	1	-	2	No	Yes
07-004	DeGeare, Truett V., Jr. and Jerry E. Ongerth. "Empirical Analysis of Commercial Solid Waste Generation". Journal of the Sanitary Engineering Division, vol. 97:SA6 (December 1971), pp. 843-850.	2	-	-	-	2	-	-	2	No	No
07-005	Delaney, James E. Satellite Vehicle Waste Collection Systems. Washington, D.C.: U.S. GPO; 1972.	1	-	-	-	1	-	-	-	No	No
07-006	Faber, Harry A. "Research on Water Treatment Plant Waste Disposal". Water and Sewage Works (November 1970), pp. 370-382.	-	-	-	-	-	1	-	-	No	No
07-007	Feldman, Stephen L. "Waste Collection Services: A Survey of Costs and Pricing" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 217-242.	-	-	-	-	-	2	-	-	No	Yes
07-008	George, Patricia Conway. The CMI Report on Solid Waste Control. Washington, D.C.: Communications Marketing CMI Inc.; 1970.	3	3	-	-	-	2	-	2	17 15	Yes
07-009	Green, John A. "Refuse Collection and Disposal: The British Experience". Management Information Service (MIS), vol. 1:L-7 (July 1969), pp. 3-11.	2	-	-	-	1	-	-	1	No	No
07-010	Grinstead, Robert R. "Bottlenecks". Environment, vol. 14:3 (April 1972), pp. 2-13.	3	2	-	-	-	3	3	3	No	No
07-011	Grinstead, Robert R. "Machinery for Trash Mining". Environment, vol. 14:4 (May 1972), pp. 34-42.	3	2	-	-	-	3	3	3	No	Yes
07-012	Grinstead, Robert R. "The New Resource". Environment, vol. 12:10 (December 1970), pp. 2-17.	3	2	1	3	-	3	3	3	No	No

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Reference Number	CODE 07: SOLID WASTE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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07-014	Hannon, Bruce M. "Bottles, Cans, Energy". Environment, vol. 14:2 (March 1972), pp. 11-21.	3	2	1	3	-	3	3	3	14	No
07-015	Hirsch, Werner Z. "Quality of Government Services" in Harold G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D.C.: Resources for the Future; 1963, pp. 163-179.	-	-	-	-	-	1	-	-	03	No
07-016	Institute for Solid Wastes of American Public Works Association. Municipal Refuse Disposal. Chicago, Illinois: Public Administration Service; 1970.	3	-	-	-	1	1	-	2	No	No
07-017	Kirby, Malcolm W. and Ernest Hirsch. "Analysis of Solid-Waste Systems in a Rural Setting". Highway Research Record, No. 39; 1972.	2	-	-	1	1	-	-	-	No	No
07-018	Kupchik, George J. "Solid Waste Management: The Metropolitan View". American Journal of Public Health, vol. 61:2 (February 1971), pp. 359-365.	2	-	-	-	-	1	-	1	No	No
07-019	McLean, Mary. Planning for Solid Waste Management. Chicago, Ill.: American Society of Planning Officials; 1971.	2	-	-	2	2	-	-	2	No	Yes
07-020	Meyer, Judith G. "Renewing the Soil". Environment, vol. 14:2 (March 1972), pp. 22-23.	3	2	1	3	-	3	3	3	No	Yes
07-021	Otton, Edmond G. Solid-Waste Disposal in the Geohydrologic Environment of Maryland. Maryland Geological Survey; 1972.	2	-	-	2	2	2	2	2	No	Yes
07-022	Schneider, William J. Hydrologic Implications of Solid-Waste Disposal. Washington, D.C.: U.S. Geological Survey; 1970.	2	-	-	2	2	-	-	2	No	Yes
07-023	Schweighauser, Charles A. Solid Waste Practices in Berkshire County: The Problems and Possibilities of Community Disposal Facilities. Williamstown, Massachusetts: Center for Environmental Studies; 1969.	2	-	-	-	2	2	2	2	No	Yes

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Reference Number	CODE 07: SOLID WASTE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
07-024	Smith, Frank Austin. "Waste Material Recovery and Reuse". Population, Resources, and the Environment, Volume 3; Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	-	-	-	-	2	-	-	-	No	No
07-025	Sorg, Thomas J. and H. Lanier Hickman, Jr. Sanitary Landfill Facts. Washington, D.C.: U.S. GPO; 1970.	2	-	-	-	-	-	-	2	No	Yes
07-026	State of New Jersey. County and Municipal Government Study Commission. Solid Waste: A Coordinated Approach. Trenton, New Jersey: County and Municipal Government Study Commission; September 1972.	2	2	-	-	-	3	1	1	No	No
07-027	U.S. Congress (Senate, 92nd Congress, First Session). Hearings: Economic Dislocation Resulting from Environmental Controls. Subcommittee on Air and Water Pollution of the Committee on Public Works; May 17-18, June 28, 1971.	2	-	-	-	2	2	2	2	No	No
07-028	U.S. Department of Housing and Urban Development. Total Energy and Pneumatic Waste Collection Demonstrations. Washington, D.C.: U.S. Department of Housing and Urban Development; 1972.	-	2	2	2	-	-	2	-	14	No
07-029	U.S. Environmental Protection Agency, Bureau of Solid Waste Management. Solid Waste Disposal Study: Technical Report, Genesee County, Michigan. Cincinnati, Ohio: U.S. Environmental Protection Agency, Bureau of Solid Waste Management; 1969.	2	-	-	-	1	-	3	2	No	Yes
07-030	U.S. Environmental Protection Agency, Bureau of Solid Waste Management. A Systems Study of Solid Waste Management in the Fresno Area. Washington, D.C.: U.S. GPO; 1969.	2	-	-	-	2	-	2	2	No	Yes
07-031	U.S. Environmental Protection Agency. Collection and Disposal of Solid Waste for the Des Moines Metropolitan Area. Washington, D.C.: U.S. EPA; 1971.	3	-	-	-	3	-	3	3	No	Yes
07-032	U.S. Environmental Protection Agency. Information Retrieval Services of EPA's Office of Solid Waste Management Programs. Washington, D.C.: U.S. EPA; 1972.	2	-	-	-	-	-	-	1	No	No

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Reference Number	CODE 07: SOLID WASTE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
07-033	U. S. Environmental Protection Agency. Solid Waste Handling and Disposal in Multistory Buildings and Hospitals. Washington, D. C.: U. S. GPO; 1972.	2	-	-	-	2	2	2	2	No	Yes
07-034	U. S. Environmental Protection Agency. Solid Waste Management in Residential Complexes. Washington, D. C.: U. S. GPO; 1971.	-	2	-	-	2	2	-	2	No	Yes
07-035	U. S. Environmental Protection Agency. A Study of Residential Solid Waste Generated in Low-Income Areas. Cincinnati, Ohio: U. S. EPA; 1972.	1	-	-	-	1	2	-	-	No	Yes
07-036	Zausner, Eric R. An Accounting System for Solid Waste Collection. Washington, D. C.: U. S. GPO; 1970.	1	-	-	-	1	-	-	-	No	No
07-037	U. S. Environmental Protection Agency. Solid Waste Management in High-Rise Dwellings. Washington, D. C.: U. S. GPO; 1972.	1	1	-	-	-	2	-	2	No	No
07-038	Northeastern Illinois Planning Commission. Solid Waste Report: Technical Report No. 7. Chicago, Illinois: NIPC; 1973.	3	-	-	-	-	2	3	-	No	Yes

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Reference Number	CODE 07: SOLID WASTE (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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15-022	Kneese, Allen V., et. al. Managing the Environment. New York, New York: Praeger Publishers, Inc.; 1971.	-	-	-	-	-	2	-	1	15 17	No
15-023	Kneese, Allen V. and Blair T. Bower. Managing Water Quality: Economics, Technology, Institutions. Baltimore, Maryland: Johns Hopkins Press; 1968.	-	-	-	1	-	-	-	-	15	No
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Reference Number	CODE 07: SOLID WASTE COLLECTION AND DISPOSAL (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
11-006	Gutheim, Frederick. Requirements for Urban Facilities and Services in Underdeveloped Areas. Washington, D. C.: Frederick Gutheim, Consultant; 1967.	-	-	-	-	2	-	-	-	11 04	No
11-027	VTN Engineers, Architects, Planners. Technical Study for New Town Development for Rancho San Diego - Utilities. San Diego, California: VTN Engineers, Architects, Planners; 1972.	2	-	-	-	-	2	2	2	11 09	Yes
15-011	Council of State Governments. Environmental Quality and State Government. Lexington, Kentucky: Council of State Governments; 1970.	-	-	-	-	-	1	-	-	15 17	No
15-013	The Environmental Quality Board. Environmental Report 1971. San Juan, Puerto Rico: The Environmental Quality Board; 1971.	-	1	-	-	-	-	1	-	15 17	No
15-056	Wallace, McHarg, Roberts & Todd, Inc. Maryland Chesapeake Bay Study. Philadelphia, Pennsylvania: Wallace, McHarg, Roberts & Todd, Inc.; March 1972.	-	2	-	-	-	2	2	2	15 11	No
22-005	Ayres, Robert U. and Ivar Gutmanis. "Technological Change, Pollution and Treatment Cost Coefficients in Input-Output Analysis". Population, Resources, and the Environment, Volume 3. Washington, D. C.: U. S. Commission on Population Growth and the American Future, U. S. GPO; 1972.	-	-	-	-	-	-	-	1	22 15	Yes
22-019	Council on Environmental Quality. Environmental Quality. Second Annual Report. Washington, D. C.: U. S. GPO; 1971.	1	1	-	-	-	2	-	2	22 17	No
22-027	Hoch, Irving. "Urban Scale and Environmental Quality". Population, Resources, and the Environment, Volume 3; Washington, D. C.: U. S. Commission on Population Growth and the American Future, U. S. GPO; 1972.	2	2	2	-	-	3	-	3	22 17	Yes
22-067	U. S. Department of Commerce, Bureau of the Census. Environmental Quality Control; Expenditure and Employment for Selected Large Governmental Units: Fiscal 1969-1970. Washington, D. C.: U. S. Department of Commerce, Bureau of the Census; 1972.	3	-	-	-	-	-	-	2	22 15	No

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Reference Number	CODE 08: COMMERCIAL Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
08-001	American Institute of Real Estate Appraisers. Case Studies in Shopping Center Valuation. Chicago: American Institute of Real Estate Appraisers; 1964.	3	-	-	-	3	2	2	-	No	No
08-002	Chicagoland Development. "Woodfield Spur to Growth of Northwest Suburb". Chicagoland Development (September 1971), pp. 14-24.	3	-	-	-	-	-	3	3	No	Yes
08-003	City of Milpitas, Planning Department. Analysis of Retail Commercial Development in the City of Milpitas, 1972-1977: A portion of the Local Government Structure Study. Milpitas, Calif.: City of Milpitas, Planning Department; 1972.	-	2	-	-	-	2	-	2	No	Yes
08-004	Claire, William H. (ed.) Urban Planning Guide. New York: American Society of Civil Engineers; 1969.	-	1	1	-	-	1	-	-	01 13	No
08-005	Cohen, Yehosua S. Diffusion of an Innovation in an Urban System: The Spread of Planned Regional Shopping Centers in the United States, 1949-1968. Chicago: University of Chicago Department of Geography, Research Paper No. 140; 1972.	1	-	-	-	2	2	-	-	No	No
08-006	Department of Metropolitan Development, Division of Planning and Zoning. Comprehensive Continuing Planning Program for the Indianapolis-Marion County Metropolitan Area. Indianapolis-Marion County, Indiana: Department of Metropolitan Development, Division of Planning and Zoning; September 1970.	2	-	-	-	-	2	-	-	No	Yes
08-007	Garner, Barry J. The Internal Structure of Retail Nucleations. Evanston, Ill.: Northwestern University Studies in Geography No. 12; 1906.	1	1	1	2	-	2	3	1	No	No
08-008	Gruen, Nina J. and Claude Gruen. "A Behavioral Approach to Determining Optimum Location for the Retail Firm". Land Economics, vol. 43:3 (August 1967), pp. 320-327.	-	1	-	-	1	-	-	-	23	No
08-009	Hoel, Robert F. et al. A Neighborhood Shopping Center in North Minneapolis: An Economic Analysis. Minneapolis: Center for Urban and Regional Affairs, School of Business Administration, University of Minnesota; 1970.	-	2	-	-	-	2	-	-	No	No

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Reference Number	CODE 08: COMMERCIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
08-010	Hoyt, Homer. "Land Values in Shopping Centers". Urban Land, vol. 28:7 (July/August 1969), pp. 3-14.	2	-	-	-	-	-	2	-	No	Yes
08-011	Hoyt, Homer. "U. S. Metropolitan Area Retail Shopping Pattern". Urban Land, vol. 25:3 (March 1966), pp. 1-16.	2	-	-	-	-	-	2	-	No	No
08-012	Lakshmanan, T. R. and Walter G. Hansen. "A Retail Market Potential Model". Journal of the American Institute of Planners, vol. 31:2 (May 1965), pp. 134-143.	2	-	-	1	-	-	-	-	No	No
08-013	McCabe, Robert W. Shopping Center Decisions: Evaluation Guides. Toronto, Ontario: Department of Municipal Affairs, Community Planning Branch; 1971.	3	-	-	-	-	2	2	-	No	No
08-014	Simmons, James. The Changing Pattern of Retail Location. Chicago: The University of Chicago, Department of Geography Research Paper No. 92; 1964.	2	-	-	2	-	2	2	-	No	Yes
08-015	Urban Land Institute. The Dollars and Cents of Shopping Centers. Washington, D. C.: The Urban Land Institute; 1972.	3	3	3	-	-	2	3	3	No	Yes
08-016	Urban Land Institute. "Oakland Mills Village Center". Project Reference File, vol. 1:3 (1971).	-	3	-	-	-	-	-	2	No	Yes
08-017	Urban Land Institute. Parking Requirements for Shopping Centers. A Survey. Technical Bulletin 53. Washington: Urban Land Institute; 1965.	-	-	1	-	-	-	-	2	01	No
08-018	Webber, Michael J. Impact of Uncertainty on Location. Cambridge, Mass.: M.I.T. Press; 1972.	2	-	-	2	-	2	-	-	No	No
08-019	Weiss, E. B. "Department Stores as New Town Builders". Stores (December 1971), pp. 42-42.	-	1	-	-	-	1	-	-	21	No
08-020	Glen Ellyn Plan Commission. Development Plan: Glen Ellyn, Illinois. Glen Ellyn, Illinois: General Planning and Resource Consultants: May 1971.	-	3	-	-	-	2	3	3	03 02	Yes
08-021	Cleveland, Donald E. and Edward A. Mueller. Traffic Characteristics at Regional Shopping Centers. New Haven, Connecticut: Bureau of Highway Traffic, Yale University; 1961.	-	-	-	-	2	2	2	3	13 19	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 08: COMMERCIAL (continued)										
08-022	Los Angeles Regional Transportation Study. 1961 Shopping Center Study: Preliminary Results. Los Angeles, California: Los Angeles Regional Transportation Study, Division of Highways, State of California; 1962.	-	-	-	-	-	-	3	3	13 19	Yes
08-023	Skokie Police Department (Skokie, Illinois). Shopping Center Survey. Skokie, Illinois: Skokie Police Department; 1963.	-	-	-	-	-	1	3	2	20	Yes

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Reference Number	CODE 08: COMMERCIAL (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-005	American Appraisal Company. Boeckh Building Valuation Manual. Milwaukee: Boeckh Division, American Appraisal Company; 1967.	-	-	-	-	-	-	-	3	01	Yes
01-013	Baird, John et. al. "Student Planning of Town Configuration". Environment and Behavior, vol. 4:2 (1972); pp. 159-188.	-	3	3	-	-	2	-	-	01 21	No
01-014	Baltimore Regional Planning Council. Environmental Characteristics Planning: An Alternative Approach to Physical Planning. Baltimore: Regional Planning Council; 1972.	1	2	-	1	-	2	-	2	01 02	No
01-024	Chapin, F. Stuart, Jr. Urban Land Use Planning. Second Edition. Urbana, Illinois: University of Illinois Press; 1965.	3	2	-	2	3	-	-	-	01 02	Yes
01-036	Eldredge, H. Wentworth. Taming Megalpolis. Vol. 1. Garden City, New York: Doubleday & Company, Inc.; 1967.	1	-	-	-	-	-	-	1	01 13	No
01-043	Glendora, California Planning Commission. Glendora Land Use Plan. Glendora: Glendora, California Planning Commission; 1961.	-	2	-	-	-	1	1	1	01 03	No
01-062	Lane Council of Governments. Eugene, Springfield Metropolitan Area, 1990 General Plan. Eugene, Oregon: Lane Council of Governments; August 1972.	-	2	-	-	-	1	-	-	01	No
01-065	Levy, Stephen and Robert K. Arnold. An Evaluation of Four Growth Alternatives in the City of Milpitas, 1972-1977. Palo Alto, California: Institute of Regional and Urban Studies; August 1972.	-	3	2	-	-	3	3	3	01 03	Yes
01-106	San Francisco Planning and Urban Renewal Association. Impact of Intensive High Rise Development in San Francisco: Step One-Part A, Initial Feasibility Test. San Francisco: SPUR; 1972.	3	-	-	-	3	-	3	2	01 22	Yes
01-130	Triton Foundation, Inc. A Study of a Prototype Floating Community. Cambridge, Massachusetts. Prepared for the Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1968.	-	2	-	-	-	2	2	1	01 03	No

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Reference Number	CODE 08: COMMERCIAL (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-139	Urban Land Institute. Project Reference File. Washington: Urban Land Institute (various issues); 1971-present.	-	-	3	-	-	-	-	2	01	Yes
01-153	Real Estate Research Corporation. Historical Analysis of Unit Land Prices. Prepared for the Department of Housing and Urban Development. Unpublished. April 1973.	3	2	-	-	-	3	3	3	01	Yes
01-156	Gleye, Paul H. Santa Fe Growth Impact Study. Prepared for the Santa Fe City Planning Department and the Frontera Del Norte Foundation. Santa Fe, New Mexico: (Unpublished); 1973.	-	3	-	-	2	2	3	3	01	Yes
13-094	Highway Research Board. Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants, Report 24. Washington, D. C.: Highway Research Board; 1966.	3	-	-	1	2	3	3	2	13 19	Yes
13-095	Institute of Traffic Engineers. Trip Generation. Los Angeles, California: Institute of Traffic Engineers, Western Section; 1967.	3	-	-	-	2	3	2	3	13 19	Yes
13-096	Institute of Traffic Engineers. "Trip Generation Study of Selected Commercial and Residential Developments". Traffic Engineering (March 1970), pp. 40-47.	3	3	-	-	-	3	2	3	13 19	Yes
13-097	Institute of Traffic Engineers. "Trip Generation at Shopping Centers". Traffic Engineering (September 1969), pp. 32-35.	3	3	-	-	-	3	2	3	13 19	Yes
21-088	McKeever, J. Ross (ed). The Community Builders Handbook. Washington, D. C.: Urban Land Institute; 1968.	3	3	3	-	-	2	3	3	21 01	Yes
23-013	Moore, C. T. and J. M. Mason. "A Test of the Concept of a Household Shopping-Travel-Behavior Corridor". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 102-108.	-	1	-	-	-	1	-	-	23	No

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Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
	CODE 08: COMMERCIAL (continued) Classification: Tertiary	Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-109	Schaenman, Philip et. al. Measurements for Evaluating Land Developments. Washington, D. C.: The Urban Institute; 1972.	-	1	-	-	-	2	2	2	01 04	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-001	Anderson, Marshall L. "Community Improvements and Services Costs". Journal of the Urban Planning and Development Division, vol. 99:UPI (March 1973), pp. 77-92.	-	2	-	-	-	2	2	-	No	Yes
09-002	Downing, Paul B. The Economics of Urban Sewage Disposal. New York: Frederick A. Praeger, Inc.; 1969.	-	-	-	2	-	2	-	-	07 06	Yes
09-003	Downing, Paul B. "Extension of Sewer Service at the Urban-Rural Fringe". Land Economics, vol. 45:1 (February 1969), pp. 103-110.	-	1	-	-	-	3	-	3	No	Yes
09-004	Engineers News Record. "Water Project Construction Costs Spurt Higher". Engineers News Record, vol. 186:24 (June 17, 1971), pp. 100-102.	3	-	-	-	-	-	-	2	No	No
09-005	Federal Water Pollution Control Administration. Division of Construction Grants. Sewer and Sewage Treatment Plant Construction Cost Index: Construction Cost Trends, Municipal Waste Treatment Works and Municipal Sewers. Washington, D.C.: U.S. GPO; 1967.	3	-	-	-	3	3	-	3	No	Yes
09-006	Grove, William R. Economies of Scale in the Provision of Urban Public Services. (Master's Thesis), Massachusetts Institute of Technology; September 1967.	3	3	-	-	-	3	-	3	11 12	Yes
09-007	Johnson, J. A. "Economic Analysis of Sewer Service Charge Formulas". Land Economics, vol. 47:1 (February 1971), pp. 80-86.	1	-	-	-	1	1	-	-	No	No
09-008	Kain, John F. Urban Form and the Costs of Urban Services. Cambridge, Massachusetts: Harvard University; 1967.	-	2	-	-	-	3	-	2	01 13	Yes
09-009	Lovelace, Eldridge H. "Control of Urban Expansion: The Lincoln, Nebraska Experience". Journal of the American Institute of Planners, vol. 31:4 (November 1965), pp. 348-351.	2	-	-	-	-	2	2	-	11 01	Yes
09-010	Lowry & Associates. Waste Water Disposal & Reclamation for the County of Orange, California. 1966-2000. Santa Ana, California: Lowry & Associates and Engineering Science, Inc.; 1966.	3	-	-	-	-	2	-	-	No	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-011	McCallum, Gordon E. "Formula for Economy: Combined Federal-City-Industry Action". Water and Wastes Engineering (October 1961), p. 528 ff.	2	-	-	-	2	-	-	2	No	No
09-012	Newville, Jack. New Engineering Concepts in Community Development. Washington, D.C.: Urban Land Institute; 1967.	2	2	2	-	2	2	-	2	10 13	Yes
09-013	Robert Snow Means Company, Inc. Building Construction Cost Data: 1973. Duxbury, Mass.: Robert Snow Means Company, Inc.; 1973.	-	-	-	-	-	-	-	3	05 06	Yes
09-014	Saucier, John W. "Design Engineers Must Analyze More Critically to Beat Mounting Costs". Water and Wastes Engineering (September 1971), pp. 48-49.	-	-	-	-	-	-	-	1	No	No
09-015	Seelye, Elwyn E. Data Book for Civil Engineers: Volume One--Design. New York, N.Y.: John Wiley and Sons, Inc.; 1968.	-	1	1	-	-	-	-	3	11 13	Yes
09-016	Seelye, Elwyn E. Data Book for Civil Engineers: Volume Two--Specifications and Costs. New York, N.Y.: John Wiley and Sons, Inc.; 1957.	-	1	1	-	-	-	-	3	11 13	Yes
09-017	Sternlieb, George. "Evaluation of Municipal Services" in Housing Development and Municipal Costs. Section III. New Brunswick, N.J.: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	3	-	-	-	3	-	3	05 23	Yes
09-018	U.S. Congress (House, 89th, Second Session). Committee on Government Operations. Separating Storm and Sanitary Sewers in Urban Renewal. Washington, D.C.: U.S. GPO; 1966.	2	-	-	-	-	2	2	-	No	No
09-019	U.S. Department of the Interior, Federal Water Pollution Control Administration. The Cost of Clean Water and its Economic Impact. Washington, D.C.: U.S. Department of the Interior, Federal Water Pollution Control Administration; 1969.	3	-	-	-	33	3	3	3	No	Yes
09-020	U.S. Department of Interior, Federal Water Quality Administration. Municipal Waste Facilities in the United States--Statistical Summary 1968 Inventory. Washington, D.C.: U.S. GPO; 1970.	2	-	-	-	2	2	2	-	No	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-021	U.S. Environmental Protection Agency. Cost to the Consumer for Collection and Treatment of Wastewater. Washington, D.C.: U.S. GPO; July 1970.	2	-	-	-	2	3	-	3	No	Yes
09-022	U.S. Environmental Protection Agency. Estimating Costs and Manpower Requirements for Conventional Wastewater Treatment Facilities. Washington, D.C.: U.S. GPO; October 1971.	2	-	-	2	2	-	-	2	No	Yes
09-023	U.S. Environmental Protection Agency. Water Quality Office. Cost of Clean Water, Vol. I: Municipal Investment Needs. Washington, D.C.: U.S. EPA; March 1971.	3	-	-	-	-	2	-	2	15	No
09-024	U.S. Environmental Protection Agency. Water Quality Office. Cost of Clean Water, Vol. II: Cost Effectiveness and Clean Water. Washington, D.C. U.S. EPA; March 1971.	3	-	-	-	-	2	-	2	No	No
09-025	Vandervelden, G.A. "Soil Surveys in Subdivision Control". Public Works, Vol. 48:8 (August 1967), pp. 108-111.	-	1	-	-	-	1	-	-	No	No
09-026	Alan M. Voorhees and Associates, Inc. Sewer System Cost Estimation Model. Baltimore, Md.: Baltimore Regional Planning Council; April 1969 (available NTIS 183 981).	-	-	-	2	-	-	-	3	No	Yes
09-027	U.S. Environmental Protection Agency. A Study of Selected Economic and Environmental Aspects of Individual Home Wastewater Treatment Systems. McLean, Virginia: Mitre Corporation; March 1972.	-	1	-	-	-	2	-	2	No	Yes
09-028	Madison-Madison International, Architects, Engineers, Planners. Adequacy and Cost Analysis of New Community Infrastructures. Washington, D.C.: Madison-Madison International; 1973.	-	3	-	-	-	-	-	3	13 11	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-006	American Public Health Association, Committee on the Hygiene of Housing. Planning the Neighborhood. Chicago: Public Administration Service; 1960.	-	2	-	-	-	2	-	2	01 20	Yes
01-009	Applied Decision Systems, Inc. The MSHDA Community Impact Model: Demonstration Analysis. Prepared for the Michigan State Housing Development Authority. Wellesley Hills, Massachusetts: Applied Decision Systems, Inc.; 1972.	-	2	-	1	2	-	1	2	01	Yes
01-095	Population Reference Bureau, Inc. "Suburban Growth: A Case Study". Population Bulletin, vol. 28:1 (February 1972).	3	-	-	-	-	3	3	-	01	Yes
01-141	Wallace-McHarg Associates, Inc. Plan for the Valleys. Baltimore, Maryland: Green Spring and Worthington Valley Planning Council, Inc.; (undated).	3	-	-	-	-	3	2	2	01	No
03-001	Barton-Aschman Associates, Inc. The Barrington, Illinois Area: A Cost-Revenue Analysis of Land Use Alternatives. Chicago: Barrington Area Development Council; 1970.	-	2	-	-	-	3	3	3	03 02	Yes
05-002	Gabler, L. R. "Economies and Diseconomies of Scale in Urban Public Sectors". Land Economics, vol. 45:4 (November 1969); pp. 425-434.	-	2	-	1	-	3	-	2	05	Yes
06-028	Metro Metrics, Inc. The Economics of Urban Growth: Costs and Benefits of Residential Construction. Washington, D.C.: Metro Metrics, Inc.; 1971.	2	-	-	-	-	3	2	3	06 03	Yes
07-001	Anderson, Richard T. (ed.) Waste Management. New York, New York: Regional Plan Association, Inc.; 1968.	2	-	-	2	2	2	2	2	07	No

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Reference Number	CODE 09: SANITARY SEWERAGE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
11-001	American Public Works Association and The Engineering Foundation. Proceedings: Conference on Engineering Utility Tunnels in Urban Areas. Chicago: American Public Works Association; February 1972.	-	-	1	-	-	-	-	2	11 12	Yes
11-008	Hardenbergh, W.A. and Edward B. Rodie. Water Supply and Waste Disposal. Scranton, Pennsylvania: International Textbook Company; 1960.	-	1	-	-	-	1	-	2	11 10	Yes
11-011	Illinois Society of Professional Engineers. Standard Specifications for Water and Sewer Main Construction in Illinois. Springfield: Society of Professional Engineers; 1967.	-	-	-	-	-	1	-	-	11 10	No
11-012	Kneese, Allen V. "Discharge Capacity of Waterways and Effluent Charges" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 133-152.	2	-	-	2	-	2	-	1	11 15	No
11-015	Public Works. "Construction Cost Requirements for Water & Waste Water Facilities". Public Works, vol. 98:12 (December 1967), pp. 112-113.	1	-	-	-	-	1	1	-	11	No
11-026	Urban Systems Research and Engineering, Inc. The Relationship Between Housing and Water Resources Planning and Management. Washington, D.C.: U.S. Office of Water Resources Research; 1972.	2	-	-	-	-	2	2	-	11	Yes
11-027	VTN Engineers, Architects, Planners. Technical Study for New Town Development for Rancho San Diego - Utilities. San Diego, California: VTN Engineers, Architects, Planners; 1972.	2	-	-	-	-	2	2	2	11 07	Yes
11-030	Wiedeman and Singleton Engineers. Water, Sewerage and Storm Drainage. Atlanta: Wiedeman and Singleton Engineers; 1972.	-	3	-	-	-	3	3	3	11 10	Yes
15-015	Grava, Sigurd. Urban Planning Aspects of Water Pollution Control. New York, New York: Columbia University Press; 1969.	-	2	2	-	-	2	-	2	15	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-007	Amherst Board of Selectmen. Final Report of the Select Committee on Goals for Amherst. Amherst, Massachusetts: Board of Selectmen; January 29, 1973.	-	-	-	-	-	1	-	-	01 02	No
01-023	Chambers, John W. "Do Single Family Homes Pay Their Way?: Summary and Comment" in Leonard T. William's Growth Cost-Revenue Studies. Berkeley, California: Associated Home Builders of the Greater Eastbay, Inc.; 1972.	2	-	-	-	3	3	2	3	01 03	Yes
01-069	Mace, Ruth L. and Warren J. Wicker. Do Single Family Homes Pay Their Way?: A Comparative Analysis of Costs and Revenues for Public Services. Washington, D.C.: Urban Land Institute, Research Monograph No. 15; 1968.	2	-	1	-	-	3	-	3	01 03	Yes
01-091	Pennsylvania Department of Community Affairs. Standards For Suburban Housing Mix: Bucks County, Pennsylvania. Philadelphia: Fels Center of Government, University of Pennsylvania; 1971.	3	3	3	-	-	3	-	3	01 03	Yes
01-137	Urban Land Institute. The Effects of Large Lot Size on Residential Development. Washington, D.C.: ULI, Technical Bulletin No. 32; 1958.	-	-	-	-	-	3	-	3	01 03	Yes
01-149	Loewenstein, Louis K. and David W. Walters. Municipal Cost/Revenue Analysis for Planned Unit Developments. Special Report No. 9. Berkeley: Institute of Urban and Regional Development, University of California; 1973.	-	1	-	-	1	-	2	2	01 03	Yes
02-002	Baltimore Regional Planning Council. General Development Plan for the Baltimore Region. Baltimore, Maryland: Baltimore Region Planning Council; September 1972.	3	-	-	-	-	2	-	-	02 11	Yes
03-009	Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 3 - Evaluation of Standards and Criteria. Fairfax, Virginia: Fairfax County Board of Supervisors; August 1972.	3	-	-	-	3	3	3	3	03 02	Yes

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Reference Number	CODE 09: SANITARY SEWERAGE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
04-010	Manvel, Allen D. "Changing Patterns of Local Government Expenditure" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D.C.: Resources for the Future; 1963, pp. 19-36.	-	2	-	-	-	2	-	2	04 05	No
06-022	Isard, Walter and Robert Coughlin. Municipal Costs and Revenues Resulting from Community Growth. Wellesley, Massachusetts: Chandler-Davis Publishing Co.; 1957.	2	3	-	2	-	3	-	3	06 03	Yes
11-003	Fair, Gordon M., et. al. Water and Wastewater Engineering. New York, New York: John Wiley; 1966.	-	-	-	-	-	1	-	-	11 10	No
11-019	Speer, Paul D. North Chicago, Illinois: Analysis of Requirements and Recommendations for Financing. Chicago: Paul D. Speer, Municipal Finance Consultant; 1959.	-	2	-	-	-	-	2	-	11 10	No
15-041	State of New Jersey. County and Municipal Government Study Commission. Water Quality Management: New Jersey's Vanishing Options. Trenton, New Jersey: County and Municipal Government Study Commission; March 1973.	3	2	-	2	-	-	2	2	15 06	Yes

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Reference Number	CODE 10: STORM SEWERAGE Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
10-001	American Public Works Association. Urban Drainage Practices, and Needs. Chicago: APWA Urban Drainage Committee; 1965.	-	2	-	-	-	2	-	2	No	Yes
10-002	Schneider, William J. Water Data for Metropolitan Areas. Washington, D.C.: U.S. Geological Survey Water-Supply Paper 1871; 1968.	2	-	-	-	-	-	-	1	15	No
10-003	U.S. Environmental Protection Agency, Water Quality Office. Urban Runoff Characteristics. Prepared by the University of Cincinnati, Department of Civil Engineering. Washington, D.C.: U.S. GPO; 1970.	-	-	-	2	-	-	-	-	15	Yes
10-004	U.S. Environmental Protection Agency, Office of Research and Monitoring. Storm Sewer Design - An Evaluation of The RRL Method. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; October 1972.	-	-	-	2	-	2	2	2	No	Yes

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Reference Number	CODE 10: STORM SEWERAGE (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
05-012	Vickrey, William W. "General and Specific Financing of Urban Services" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D.C.: Resources for the Future; 1963, pp. 62-90.	-	-	-	2	-	1	-	-	05 13	No
09-012	Newville, Jack. New Engineering Concepts in Community Development. Washington, D.C.: Urban Land Institute; 1967.	2	2	2	-	2	2	-	2	09 13	Yes
11-003	Fair, Gordon M. et. al. Water and Wastewater Engineering. New York, New York: John Wiley; 1966.	-	-	-	-	-	1	-	-	11 09	No
11-019	Speer, Paul D. North Chicago, Illinois: Analysis of Requirements and Recommendations for Financing. Chicago: Paul D. Speer, Municipal Finance Consultant; 1959.	-	2	-	-	-	-	2	-	11 09	No
13-089	Barton Aschman Associates, Inc. Shenandoah New Community: Roadway, Sidewalk, Lighting and Storm Drainage Costs. Washington, D.C.: Barton Aschman Associates, Inc.; 1971.	-	3	-	-	2	-	2	3	13	Yes
13-090	Gulf Union Corporation. Engineering Criteria and Construction Cost Development: Nouville New Community. Baton Rouge, Louisiana: Gulf Union Corporation; 1973.	-	3	-	-	2	-	2	3	13 11	Yes

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Reference Number	CODE 10: STORM SEWERAGE (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-123	Stollenwerk, Donald A. Cost Factors in the Choice of Subdivision Locations by Residential Developers. Chapel Hill, North Carolina: University of North Carolina Department of City and Regional Planning (thesis); 1964.	-	2	-	2	-	2	-	-	01 23	Yes
11-008	Hardenbergh, W.A. and Edward B. Rodie. Water Supply and Waste Disposal. Scranton, Pennsylvania: International Textbook Company; 1960.	-	1	-	-	-	1	-	2	11 09	Yes
11-011	Illinois Society of Professional Engineers. Standard Specifications for Water and Sewer Main Construction in Illinois. Springfield: Society of Professional Engineers; 1967.	-	-	-	-	-	1	-	-	11 09	No
11-030	Wiedeman and Singleton Engineers. Water, Sewerage and Storm Drainage. Atlanta: Wiedeman and Singleton, Engineers; 1972.	-	3	-	-	-	3	3	3	11 09	Yes
13-060	Real Estate Research Corporation. Financial Analysis Models for New Communities. Chicago: Real Estate Research Corporation; 1972.	1	2	-	1	-	-	3	3	13 21	Yes
18-001	Beasley, R. P. Erosion and Sediment Pollution Control. Ames, Iowa: The Iowa State University Press; 1972.	-	2	1	-	-	2	-	2	18 15	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
11-001	American Public Works Association and The Engineering Foundation. Proceedings: Conference on Engineering Utility Tunnels in Urban Areas. Chicago: American Public Works Association; February, 1972.	-	-	1	-	-	-	-	2	09 12	Yes
11-002	Andrews, Richard A. and Martha R. Hammond. Characteristics of Household Water Consumption in Three New Hampshire Communities. Durham, New Hampshire: Water Resources Research Center, University of New Hampshire; December, 1970.	-	2	-	-	-	-	2	-	No	Yes
11-003	Fair, Gordon M. et. al. Water and Wastewater Engineering. New York: John Wiley; 1966.	-	-	-	-	-	1	-	-	10 09	No
11-004	Fristoe, C. W. et. al. "Some Aspects of Water Pricing in Non-Industrial Communities." Land Economics, vol. 47:1 (February 1971), pp. 87-92.	-	1	-	-	-	2	-	-	No	No
11-005	Gruen, Gruen & Associates. The Impacts of Growth - An Analytical Framework and Fiscal Example. Berkeley: The California Better Housing Foundation, Inc.; 1972.	-	3	-	-	2	2	3	3	03 15	Yes
11-006	Gutheim, Frederick. Requirements for Urban Facilities and Services in Underdeveloped Areas. Washington, D.C.: Frederick Gutheim, Consultant; 1967.	-	-	-	-	2	-	-	-	04 07	No
11-007	Hanke, Steve H. "Pricing Urban Water" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 283-308.	3	3	1	2	-	1	-	1	No	No
11-008	Hardenbergh, W.A. and Edward B. Rodie. Water Supply and Waste Disposal. Scranton, Pa.: International Textbook Company; 1960.	-	1	-	-	-	1	-	2	09 10	Yes
11-009	Hirshleifer, Jack et al. Water Supply. Chicago: University of Chicago Press; 1960.	-	-	-	1	-	-	2	2	No	Yes
11-010	Hittman Associates, Incorporated. Price, Demand, Cost, and Revenue in Urban Water Utilities. Washington, D.C.: U.S. Department of Commerce (NTIS); September 1970.	3	-	-	3	-	-	3	-	No	Yes
11-011	Illinois Society of Professional Engineers. Standard Specifications for Water and Sewer Main Construction in Illinois. Springfield: Society of Professional Engineers; 1967.	-	-	-	-	-	1	-	-	09 10	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
11-012	Kneese, Allen V. "Discharge Capacity of Waterways and Effluent Charges" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 133-152.	2	-	-	2	-	2	-	1	09 15	No
11-013	Leven, Charles L. (ed.) Development Benefits of Water Resource Investments. Alexandria, Virginia: U.S. Army Engineer Institute for Water Resources; 1969.	-	-	-	-	2	-	-	-	No	No
11-014	Linaweaver, F. P., Jr. et al. A Study of Residential Water Use. Baltimore, Maryland: Department of Environmental Engineering Science; 1967.	-	-	-	3	-	3	-	3	No	Yes
11-015	Public Works. "Construction Cost Requirements for Water & Waste Water Facilities". Public Works, vol. 98:12 (December 1967), pp. 112-113.	1	-	-	-	-	1	1	-	09	No
11-016	Ridker, Ronald G. "Future Water Needs and Supplies, with a Note on Land Use". Population, Resources, and the Environment, Volume 3; Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	-	-	-	-	-	2	-	2	No	No
11-017	Saunders, Robert J. "Urban Area Water Consumption: Analysis and Projections". Quarterly Review of Economics and Business, vol. 9:2 (Summer 1969), pp. 5-20.	-	-	-	1	-	1	-	-	No	No
11-018	Savini, John and J. C. Kammerer. Urban Growth and the Water Regimen. Washington, D.C.: U.S. GPO; 1961.	2	-	-	2	-	-	-	-	15	Yes
11-019	Speer, Paul D. North Chicago, Illinois: Analysis of Requirements and Recommendations for Financing. Chicago: Paul D. Speer, Municipal Finance Consultant; 1969.	-	2	-	-	-	-	2	-	10 09	No
11-020	Stober, W. J. and L. H. Falk. "A Benefit-Cost Analysis of Local Water Supply". Land Economics, vol. 43:3 (August 1967), pp. 328-335.	-	2	-	-	-	2	-	-	No	No
11-021	Stoltenberg, David H. "Thirty-Seven Gallons Per Capita Per Day". The American City, vol. 34 (October 1970), p. 140.	-	2	-	-	-	1	-	1	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
11-022	Tolley, George S. (ed.) Estimation of First Round and Selected Subsequent Income Effects of Water Resources Investment. Alexandria, Virginia: U.S. Army Engineer Institute for Water Resources; 1970.	-	-	-	2	2	-	-	-	No	No
11-023	U.S. Army Corps of Engineers. Water: Our Many-Splendored Inheritance - How Can We Most Enjoy It? Washington, D.C.: U.S. Army Corps of Engineers; (Undated.)	2	-	-	-	2	2	-	2	No	No
11-024	U.S. Department of Health, Education and Welfare, Bureau of Water Hygiene, Region V. Community Water Supply Study: Cincinnati, Ohio. Washington, D.C.: U.S. Department of HEW; 1970.	3	-	-	-	2	2	2	1	No	No
11-025	U.S. Department of Health, Education and Welfare, Public Health Service. Community Water Supply Study: Analysis of National Survey Findings. Washington, D.C.: U.S. Department of HEW, Public Health Service; July 1970.	-	2	-	-	-	2	-	2	No	Yes
11-026	Urban Systems Research and Engineering, Inc. The Relationship Between Housing and Water Resources Planning and Management. Washington, D.C.: U.S. Office of Water Resources Research; 1972.	2	-	-	-	-	2	2	-	09	Yes
11-027	VTN Engineers, Architects, Planners. Technical Study for New Town Development for Rancho San Diego - Utilities. San Diego, California: VTN Engineers, Architects, Planners; 1972.	2	-	-	-	-	2	2	2	09 07	Yes
11-028	Water Pollution and Water Resources Commission of the State of Illinois. Supplemental Report: The Santee County, California, Water District Project. Chicago, Illinois: Water Pollution and Water Resources Commission; 1967.	-	2	-	-	-	-	1	1	No	No
11-029	Water Resources Center. The Christina Basin: The Protection of Water Resources As a Basis for Planning in Developing Areas. Newark, Delaware: Delaware University; April 1972.	-	2	-	-	-	2	2	-	15	Yes
11-030	Wiedeman and Singleton Engineers. Water, Sewerage and Storm Drainage. Atlanta: Wiedeman and Singleton Engineers; 1972. Prepared for Shenandoah New Community.	-	3	-	-	-	3	3	3	09 10	Yes
11-031	Wong, S.T. "A Model on Municipal Water Demand: A Case Study on Northeastern Illinois". Land Economics, vol. 48:1 (February-November 1972), pp. 34-44.	-	-	-	1	1	1	2	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 11: WATER SUPPLY (continued)										
11-032	Campbell, Michael D., and Jay H. Lehr. Water Well Technology. New York, New York: McGraw-Hill Book Company; 1973.	-	1	-	-	2	1	-	2	No	Yes

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Reference Number	CODE 11: WATER SUPPLY (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-050	The Home Builders Association of Metropolitan Colorado Springs. Growth: An Analysis of Alternative Policies for Metropolitan Colorado Springs. Colorado Springs, Colorado: Colorado Springs Homebuilders Association; September 1972.	2	-	-	-	-	2	2	-	01	Yes
02-002	Baltimore Regional Planning Council. General Development Plan for the Baltimore Region. Baltimore, Maryland: Baltimore Region Planning Council; September 1972.	3	-	-	-	-	2	-	-	02 09	Yes
09-006	Grove, William R. Economies of Scale in the Provision of Urban Public Services. (Master's Thesis), Massachusetts Institute of Technology; September 1967.	3	3	-	-	-	3	-	3	11 12	Yes
09-009	Lovelace, Eldridge H. "Control of Urban Expansion: The Lincoln, Nebraska Experience". Journal of the American Institute of Planners, vol. 31:4 (November 1965), pp. 348-351.	2	-	-	-	-	2	2	-	09 01	Yes
09-015	Seelye, Elwyn E. Data Book for Civil Engineers: Volume One--Design. New York, New York: John Wiley and Sons, Inc.; 1968.	-	1	1	-	-	-	-	3	09 13	Yes
09-016	Seelye, Elwyn E. Data Book for Civil Engineers: Volume Two--Specifications and Costs. New York, New York: John Wiley and Sons, Inc.; 1957.	-	1	1	-	-	-	-	3	09 13	Yes
12-002	Ayres, Robert U. et. al. An Integrated Utility System Concept. Washington, D.C.: International Research and Technology Corp.; 1970.	-	-	1	2	-	-	-	2	12	Yes
15-044	U.S. Department of Health, Education and Welfare. Public Health Service. Report on Pollution of the Waters of the Calumet Rivers (and others), Illinois-Indiana. Chicago, Illinois: Public Health Service, Department of Health, Education and Welfare Region V; February 1965.	2	-	-	-	-	2	2	-	15	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
15-056	Wallace, McHarg, Roberts & Todd, Inc. Maryland Chesapeake Bay Study. Philadelphia, Pennsylvania: Wallace, McHarg, Roberts & Todd, Inc.; March 1972.	-	2	-	-	-	2	2	2	15 07	No
18-005	Southeastern Wisconsin Regional Planning Commission. Soils Development Guide. Waukesha, Wisconsin: Southeastern Wisconsin Regional Planning Commission; August 1969.	3	3	3	-	3	2	3	2	18 22	Yes

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Reference Number	CODE 11: WATER SUPPLY (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
03-007	Fairfax County Planning Commission. Five Year Countywide Development Program. Vol. I - Presentation of Alternatives. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.	3	-	-	-	3	-	-	3	03 04	Yes
06-005	Ashley, Thomas J. "Cost-Revenue Analysis of New Housing Development in the City of San Diego" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay, Inc.; November 1972.	2	-	-	-	2	3	2	2	06 13	Yes
09-028	Madison-Madison International, Architects, Engineers, Planners. Adequacy and Cost Analysis of New Community Infrastructures. Washington, D. C.: Madison-Madison International; 1973.	-	3	-	-	-	-	-	3	09 13	Yes
13-090	Gulf Union Corporation. Engineering Criteria and Construction Cost Development: Nouville New Community. Baton Rouge, Louisiana: Gulf Union Corporation; 1973.	-	3	-	-	2	-	2	3	13 10	Yes
21-096	Milton Keynes Development Corporation. The Plan for Milton Keynes. Vol. I-2. Milton Keynes, United Kingdom: Milton Keynes Development Corporation; March 1970.	-	2	-	-	2	2	2	-	21 06	Yes
21-102	Nunn, Douglas. Newcom: Volume III - The Physical Environment. Louisville, Kentucky: The Urban Studies Center, University of Louisville; November 1971.	2	2	-	2	-	-	2	2	21 13	Yes

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Reference Number	CODE 12: UTILITIES/GAS AND ELECTRIC Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
12-001	Anderson, Kent P. Residential Demand for Electricity: Econometric Estimates for California and the United States. Santa Monica, California: The Rand Corporation; January 1972.	-	-	-	2	-	1	-	1	No	No
12-002	Ayres, Robert U. et al. An Integrated Utility System Concept. Washington, D.C.: International Research and Technology Corporation; 1970.	-	-	1	2	-	-	-	2	11	Yes
12-003	Bestor, George C. Buried Cables. A Survey of Buried Electric Distribution for Residential Land Development. Washington, D.C.: Urban Land Institute Technical Bulletin No. 48; 1964.	-	-	1	-	-	-	-	2	23	Yes
12-004	Edison Electric Institute. EEI Pocketbook of Electric Utility Industry Statistics. New York: Edison Electric Institute; 1972.	-	-	-	-	-	-	-	1	No	No
12-005	Edison Electric Institute. Questions and Answers About the Electric Utility Industry. New York: Edison Electric Institute; 1970-1971.	-	-	-	-	-	-	-	1	No	No
12-006	Electric Power Survey Committee. 52nd Semi-Annual Electric Power Survey. New York: Edison Electric Institute; October 1972.	-	-	-	-	-	-	-	1	No	No
12-007	Federal Power Commission. All Electric Homes in the U.S. Washington, D.C.: U.S. GPO; January 1, 1971.	2	2	2	-	-	-	-	2	No	No
12-008	Federal Power Commission. The 1970 National Power Survey, Federal Power Commission, Part I. Washington, D.C.: U.S. GPO; December 1971.	-	-	-	-	-	2	-	2	No	Yes
12-009	Federal Power Commission. Statistics of Interstate Natural Gas Pipeline Companies, 1971. Washington, D.C.: U.S. GPO; August 1972.	-	-	-	-	-	-	-	2	No	No
12-010	Federal Power Commission. Statistics of Publicly Owned Electric Utilities in the United States: Washington, D.C.: U.S. GPO; February 1972.	-	-	-	-	-	-	-	3	No	No
12-011	Federal Power Commission. Steam - Electric Plant Construction Cost and Annual Production Expenses, 1970. Washington, D.C.: U.S. GPO; June 1972.	-	-	-	-	-	-	-	2	No	No

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Reference Number	CODE 12: UTILITIES/GAS AND ELECTRIC (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
12-012	Federal Power Commission. Typical Electric Bills. Washington, D.C.: U.S. GPO; December 1971.	-	2	-	-	-	2	-	2	No	Yes
12-013	Fettig, Lee E. "New Towns and the Gas Industry's Involvement". American Gas Association Monthly (September 1971), pp. 10-12.	-	1	-	-	-	1	-	-	21	No
12-014	Urban Land Institute. "How Much is Underground Wiring Worth?" Urban Land, vol. 28:4 (April 1969), p. 1ff.	-	-	2	-	-	-	-	2	No	No
12-015	Wallace, Richard L. and Paul E. Junk. "Economic Inefficiency of Small Municipal Electric Generating Systems". Land Economics, vol. 46:1 (February 1970), pp. 98-104.	-	1	-	-	-	2	-	2	No	Yes

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Reference Number	CODE 12: UTILITIES/GAS AND ELECTRIC (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-088	Norcross, Carl. Open Space Communities in the Market Place. Washington, D. C.: Urban Land Institute; 1966.	-	2	-	-	-	2	2	-	01	Yes
14-015	Seattle City Light. Annual Report. Seattle: Department of Lighting, 1970.	2	-	-	-	-	-	-	1	14	No

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Reference Number	CODE 12: UTILITIES/GAS AND ELECTRIC (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-006	Grove, William R. Economies of Scale in the Provision of Urban Public Services. (Master's Thesis), Massachusetts Institute of Technology; September 1967.	3	3	-	-	-	3	-	3	09 11	Yes
11-001	American Public Works Association and The Engineering Foundation. Proceedings: Conference on Engineering Utility Tunnels in Urban Areas. Chicago, Illinois: American Public Works Association; February 1972.	-	-	1	-	-	-	-	2	11 09	Yes
21-114	The Rouse Company. An Analysis of Development Trends and Projections and Recommendations for a New City in South Richmond. Columbia, Maryland: The Rouse Company; May 1970.	-	2	-	-	-	3	3	3	21 01	Yes
22-029	Institute for Urban Studies. University of Pennsylvania. Accelerated Growth in a Metropolitan Fringe Area. Philadelphia, Pennsylvania: University of Pennsylvania; 1954. (2 volumes.)	-	2	-	-	-	2	2	2	22 01	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
13-001	Aerospace Group, Boeing Corporation. A Report From Boeing on the Morgantown Project. Seattle, Washington: Boeing Corporation; 1973.	3	-	-	-	2	-	3	-	No	No
13-002	Abend, Norman A. "Transportation Inputs in New Town Planning". Traffic Quarterly (April 1969), pp. 243-261.	-	1	-	-	-	2	-	-	21	Yes
13-003	Alexander, Christopher. "The Pattern of Streets". Journal of the American Institute of Planners, vol. 32:5 (September 1966), pp. 273-278.	1	1	-	-	1	-	-	-	No	No
13-004	American Association of State Highway Officials. Geometric Design Guide for Local Roads and Streets, Part I: Rural. Washington: AASHO; 1970.	-	-	3	-	-	-	-	2	18	Yes
13-005	American Association of State Highway Officials. A Policy on Arterial Highways in Urban Areas. Washington: American Association of State Highway Officials General Offices; 1957.	-	-	2	-	-	-	-	2	No	No
13-006	American Association of State Highway Officials. Road User Benefit Analyses for Highway Improvements. Part I: Passenger Cars in Rural Areas. Washington, D.C.: AASHO; 1960.	-	-	-	-	2	-	-	-	19	No
13-007	American Public Works Association. A Survey of Urban Arterial Design Standards. Chicago: American Public Works Association; 1969.	-	3	-	-	-	-	3	3	No	Yes
13-008	Avery, William H. "An Integrated Urban-Interurban Transportation Concept". Traffic Quarterly, vol. 23:2 (April 1969), pp. 285-311.	1	-	-	-	-	2	-	-	No	No
13-009	Baerwald, John E. "Improvement Priority Ratings for Local Rural Roads in Indiana". Highway Research Board Proceedings, 1956. Washington, D.C.: Highway Research Board; 1956, pp. 38-62.	-	-	-	-	1	-	-	-	No	No
13-010	Bailey, S. Stuart and Harry T. Dimitriou. "The Commuter and 'Park and Ride'". Traffic Quarterly, vol. 26:4 (October 1972), pp. 561-574.	1	-	-	-	-	2	-	-	19	No
13-011	Ball, E. M. "Travel Characteristics of Two San Diego Subdivision Developments". Highway Research Record No. 203. Washington, D.C.: Highway Research Board; 1958.	-	-	2	-	-	2	2	2	01	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
13-012	Baumann, Dwight M. B. "Compatible Automation of New Town Transportation". Workshop on Transportation for New Towns and Communities. Washington, D. C.: Institute of Public Administration (NTIS); December 1969.	-	-	-	-	-	1	-	-	21	No
13-014	Bellomo, Salvatore J. and Steven C. Provost. "Toward an Evaluation of Subarea Transportation Systems". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 14-33.	3	-	-	-	1	-	-	-	No	No
13-015	Bellomo, Salvatore J. and Steven C. Provost. "Two Procedures to Improve the Economic Evaluation of Alternative Highway Systems". Highway Research Record No. 224. Washington, D. C.: Highway Research Board; 1968, pp. 44-53.	3	-	-	-	2	-	-	-	No	No
13-016	Bellomo, Salvatore J. and Edward Edgerley, Jr. "Ways to Reduce Air Pollution Through Planning Design and Operations". Highway Research Record No. 356. Washington, D. C.: Highway Research Board; 1971; pp. 139-157.	1	-	-	-	-	2	-	-	17	Yes
13-017	Bendix Corp. Columbia Transit Program: Phase 1 Final Report Concept Formulation. Ann Arbor: Bendix Corp.; 1970.	3	3	3	-	-	-	3	3	23	Yes
13-018	Berry, Donald S. et. al. The Technology of Urban Transportation. Chicago, Illinois: Northwestern University Press; 1963.	2	-	-	-	-	2	-	-	No	No
13-019	Betz, Matthew H. "Interpretation of Costs". Journal of the Highway Division. Proceedings of the American Society of Civil Engineers (October 1966), pp. 49-60.	-	-	-	-	-	1	-	-	No	No
13-020	Black, Alan. "Optimizing Density of Development with Respect to Transportation Cost". Highway Research Record No. 207. Washington, D. C.: Highway Research Board; 1967, pp. 22-31.	1	1	-	-	2	-	1	-	No	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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13-022	Botzow, Hermann. "An Empirical Method for Estimating Auto Commuting Costs". Highway Research Record No. 197. Washington, D.C.; pp. 56-67.	-	-	-	-	1	1	1	-	No	No
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13-032	Eberhard, John P. "An Analysis of the Impact of Transportation Systems on Other Systems of the City". Workshop on Transportation for New Towns and Communities. Washington, D.C.: Institute of Public Administration (NTIS); December 1969.	-	-	-	1	-	1	-	-	No	No
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13-094	Highway Research Board. Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants, Report 24. Washington, D. C.: Highway Research Board; 1966.	3	-	-	1	2	3	3	2	08 19	Yes
13-095	Institute of Traffic Engineers. Trip Generation. Los Angeles, California: Institute of Traffic Engineers, Western Section; 1967.	3	-	-	-	2	3	2	3	08 19	Yes
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01-063	Leven, Charles L. Changing Sizes, Forms, and Functions of Urban Areas. St. Louis, Missouri: Institute for Urban and Regional Studies, Washington University; February 1972.	2	-	-	-	-	2	-	-	01 06	No
01-124	Stone, P. A. "The Economics of Form and Organization of Cities". Urban Studies, vol. 9:3 (October 1972); pp. 329-346.	-	-	-	-	-	2	-	-	01	Yes
03-018	Wheaton, William L. and Morton Schussheim. The Cost of Municipal Services in Residential Areas. Washington, D.C.: U.S. GPO; 1956.	-	3	-	-	-	3	2	1	03 05	Yes
06-005	Ashley, Thomas J. "Cost-Revenue Analysis of New Housing Development in the City of San Diego" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay, Inc.; November 1972.	2	-	-	-	2	3	2	2	06 11	Yes
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08-022	Los Angeles Regional Transportation Study. 1961 Shopping Center Study: Preliminary Results. Los Angeles, California: Los Angeles Regional Transportation Study, Division of Highways, State of California; 1962.	-	-	-	-	-	-	3	3	08 19	Yes
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19-007	Sawhill, Roy B. et. al. "Vehicle Characteristics of Fuel and Travel Time on Urban Arterials and Freeways". Highway Research Record No. 314. Washington, D. C.: Highway Research Board; 1970, pp. 41-60.	-	-	-	-	-	2	-	-	19	Yes

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19-011	Alan M. Voorhees and Associates, Inc. Reston Transportation Study. McLean, Virginia: Alan M. Voorhees and Associates, Inc.; 1970.	-	3	2	-	2	3	3	3	19 23	Yes
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19-015	Highway Research Board. Factors and Trends in Trip Lengths, Report 48. Washington, D.C.: Highway Research Board; 1968.	2	2	-	2	2	2	-	3	19	Yes
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20-006	Drake, Gerard L. and Merwyn A. Kraft. "Motor Vehicle Accident Costs in the Washington Metropolitan Area". Highway Research Record No. 188. Washington, D. C.: Highway Research Board; 1967, pp. 127-139.	-	-	-	-	-	2	-	-	20	Yes
20-007	Fee, Julie A. et. al. Interstate System Accident Research Study - I. Washington, D. C.: U. S. Department of Transportation, Federal Highway Administration; October 1970. Available U. S. GPO.	-	-	-	-	-	2	-	-	20	Yes
20-009	Haefner, Lonnie E. and Edward K. Morlok. "Optimal Geometric Design Decisions for Highway Safety". Highway Research Record No. 371. Washington, D. C.: Highway Research Board; 1971, pp. 12-23.	-	-	-	1	-	-	-	-	20	No
20-010	Heaton, Carla J. "A Comparison of Motor Vehicle Accident Cost Data". Highway Planning Technical Report No. 21. Washington, D. C.: U. S. Federal Highway Administration; 1971.	-	-	-	-	-	2	-	-	20	No
20-011	Huelke, Donald F. and Paul W. Gikas. "Non-Intersectional Automobile Fatalities -- A Problem in Roadway Design". Highway Research Record No. 152. Washington, D. C.: Highway Research Board; 1967, pp. 103-119.	-	-	-	-	-	-	1	-	20	No
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21-033	Crane, David A. et. al. Keyes, Lethbridge, and Condon. Developing New Communities: Application of Technological Innovations. Washington, D.C.: U.S. GPO; December 1968.	-	1	-	-	1	-	2	-	21	No
21-034	De Chiara, Joseph and Lee Koppelman. Planning Design Criteria. New York, New York: Van Nostrand Reinhold Co.; 1969.	-	2	2	-	2	-	-	3	21 01	Yes
22-052	Orange County Planning Department. Orange County Population Growth Policy and Development Strategy Study: Phase II Report. Santa Ana, California: Orange County Planning Department; 1972.	2	-	-	-	-	2	2	-	22 02	Yes
23-007	Hille, Stanley J. and Theodore K. Martin. "Consumer Preference in Transportation". Highway Research Record No. 197. Washington, D.C.: Highway Research Board; 1967, pp. 36-44.	2	-	-	-	-	2	2	-	23	Yes
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23-015	Sherman, Roger. "A Private Ownership Bias in Transit Choice" in Edel and Rothenberg's (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 480-485.	1	1	-	-	-	1	-	-	23	No

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01-036	Eldredge, H. Wentworth. Taming Megalopolis. Vol. 1. Garden City, New York: Doubleday & Company, Inc.; 1967.	1	-	-	-	-	-	-	1	01 08	No
01-060	Kettaneh, Anthony, ed. Project Romulus: An Adaptable High Density Urban Prototype. Cambridge, Massachusetts: The M.I.T. Press, M.I.T. Report No. 12; 1968.	-	2	-	3	3	3	-	3	01 21	Yes
05-012	Vickrey, William W. "General and Specific Financing of Urban Services" in Howard G. Schaller's (ed.) Public Expenditure Decisions in the Urban Community. Washington, D.C.: Resources for the Future; 1963, pp. 62-90.	-	-	-	2	-	1	-	-	05 10	No
06-013	English, John Christopher. The Impact of Land Use Patterns on Public Service Expenditures in the Twin Cities Metropolitan Area. St. Paul, Minnesota: University of Minnesota, PhD dissertation (unpublished); 1967.	1	-	-	-	-	2	2	2	06 05	Yes
08-004	Claire, William H. (ed.) Urban Planning Guide. New York, New York: American Society of Civil Engineers; 1969.	-	1	1	-	-	1	-	-	08 01	No
09-008	Kain, John F. Urban Form and the Costs of Urban Services. Cambridge, Massachusetts, Harvard University; 1967.	-	2	-	-	-	3	-	2	09 01	Yes
09-012	Newville, Jack. New Engineering Concepts in Community Development. Washington, D.C.: Urban Land Institute; 1967.	2	2	2	-	2	2	-	2	09 10	Yes
09-015	Seelye, Elwyn E. Data Book for Civil Engineers: Volume One--Design. New York, New York: John Wiley and Sons, Inc.; 1968.	-	1	1	-	-	-	-	3	09 11	Yes

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21-075	Lansing, John B. et. al. Planned Residential Environments. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 1970.	-	3	3	-	-	2	-	-	21 02	Yes
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21-117	Scott, Stanley. Local Government for Large New Communities. Berkeley, California: Institute of Governmental Studies; 1965.	1	-	-	-	-	1	-	-	21 06	No
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22-016	Cowan, Peter (ed.) Developing Patterns of Urbanization. Beverly Hills, California: Sage Publications; 1970.	-	-	-	1	-	1	-	1	22 02	No
23-010	Lansing, John B. and Eva Mueller. "Residential Location and Urban Mobility". Highway Research Record No. 106. Washington, D.C.: Highway Research Board; pp. 77-96.	-	-	-	-	-	2	-	2	23 01	Yes

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14-002	Corr, Michael and Dan MacLeod. "Getting It Together". Environment, vol. 14:9 (November 1972), pp. 3-9.	-	-	-	-	-	3	3	-	No	No
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14-004	Darmstadter, Joel. "Energy". Population, Resources, and the Environment, Volume 3; Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	-	-	-	3	2	-	2	-	No	No
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14-008	Hittman Associates. Residential Energy Consumption: Multi-Family Housing Data Acquisition. Columbia, Maryland: Hittman Associates; 1972.	-	-	3	-	-	-	1	3	01	Yes
14-009	Hittman Associates, Inc. Residential Energy Consumption. Phase I Report. Columbia, Maryland: Hittman Associates; 1972. Available NTIS.	-	-	3	-	-	-	1	3	01	Yes
14-010	National Mineral Wool Insulation Association, Inc. Impact of Improved Thermal Performance in Conserving Energy. New York, New York: National Mineral Wool Insulation Association, Inc.; April 1972.	1	1	1	-	-	3	-	3	01	Yes
14-011	Odum, Howard T. Environment, Power and Society. New York, New York: Wiley-Interscience; 1971.	2	-	-	3	-	-	-	2	No	Yes
14-012	Price Waterhouse & Co. Power System: Financial Statements. Los Angeles: Price Waterhouse & Co., June 30, 1972.	1	-	-	-	-	-	-	1	No	No

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15-032	Pluhowski, E. J. Urbanization and Its Effect on the Temperature of the Streams on Long Island, New York. Geological Survey Professional Paper 627-D. Washington, D. C.: U. S. GPO; 1970.	-	-	-	-	-	1	1	-	15	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 14: ENERGY USE (continued) Classification: Tertiary										
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15-003	Ayres, Leslie and Ivars Gutmanis. A Model For Strategic Allocation of Water Pollution Abatement Funds. Washington, D. C.: The Brookings Institution; 1971.	-	-	-	3	-	2	-	3	No	Yes
15-004	Barnard, Jerald R. Economic Analysis of Alternative Water Pollution Control Measures. Ames, Iowa: Iowa State Water Resources Research Institute, Iowa State University; December 1971.	-	-	-	-	-	1	-	1	No	No
15-005	Baxter, Samuel S. "Economic Considerations of Water Pollution Control". Journal of the Water Pollution Control Federation, vol. 37:10 (October 1965), pp. 1363-1369.	-	1	-	-	-	1	-	-	No	No
15-006	Business Week. "Legal War on Water Pollution". Business Week (July 1960), p. 132.	3	-	-	-	-	-	1	-	No	No
15-007	Central Lane Planning Council. Crisis: Water. Eugene, Oregon: Central Lane Planning Council; 1968.	1	1	-	-	-	1	-	-	No	No
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15-009	Colorado Legislative Council. Water Pollution in Colorado. Part I. Denver, Colorado: Colorado Legislative Council; 1965.	2	-	-	-	-	2	-	-	No	No
15-010	Colorado Legislative Council. Water Pollution in Colorado. Part II. Denver, Colrado: Colorado Legislative Council; 1966.	2	2	-	-	-	2	-	3	No	Yes

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15-012	Dharmadhikari, Vishnu V. Quality of Runoff From Diversified Urban Watersheds. (Master's Theses), University of Arizona; 1970.	-	-	-	-	-	1	1	-	No	No
15-013	The Environmental Quality Board. Environmental Report 1971. San Juan, Puerto Rico: The Environmental Quality Board; 1971.	-	1	-	-	-	-	1	-	17 07	No
15-014	Environmental Science and Technology. "Reusing Storm Runoff". Environmental Science and Technology, vol. 2:11 (November 1968), pp. 1001-1005.	-	2	-	2	-	-	2	2	21	Yes
15-015	Grava, Sigurd. Urban Planning Aspects of Water Pollution Control. New York: Columbia University Press; 1969.	-	2	2	-	-	2	-	2	09	Yes
15-016	Harza Engineering Co. Watershed Planning Program for Buffalo and McDonald Creeks: Prospectus. Wheeling, Illinois; March 1968.	-	-	1	-	-	-	2	-	18	No
15-017	Hennigan, Robert D. "State and Federal Action for Clean Water". Water and Wastes Engineering (October 1969), pp. 48-49.	-	-	-	-	-	1	-	-	No	No
15-018	Howells, David H. "Collaboration for Water Pollution Control". Monthly Municipal Review (July 1964), pp. 99-100.	-	-	-	-	-	1	-	-	No	No
15-019	Interstate Commission on the Potomac River Basin. Land Runoff -- A Factor in Potomac Basin Pollution. Harrisburg, Virginia: Interstate Commission on the Potomac River Basin; July 1967.	-	-	-	-	-	2	2	-	18	Yes
15-020	Isard, Walter et. al. "On the Linkage of Socio-Economic and Ecologic Systems", Ekistics (July 1969), pp. 28-34.	-	-	-	-	-	1	1	-	No	No
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15-024	Kneese, Allen V. "Rationalizing Decisions in the Quality Management of Water Supply in Urban-Industrial Areas" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 375-397.	-	-	-	-	-	1	-	-	17	No
15-025	Ligon, Roddey M. Jr. "Legal Basis for Water Pollution Control". Popular Government (March/April 1962), pp. 6-10.	-	-	-	-	-	1	-	-	06	No
15-026	Macaulay, Hugh H. Use of Taxes, Subsidies, and Regulations for Pollution Abatement. Clemson, South Carolina: Water Resources Research Institute, Clemson University; 1970.	-	-	-	1	1	-	-	-	No	No
15-027	Morrill, George B. III, and Larry G. Toler. "Effect of Septic-Tank Wastes on Quality of Water, Ipswich and Shawsheen River Basins, Massachusetts". Jour. Research U.S. Geol. Survey, vol. I:1 (January-February 1973), pp. 117-120.	-	1	-	-	-	2	1	3	No	Yes
15-028	Mummert, Philip J. et al. Water and Our Future. Washington, D.C.: National Association of Counties Research Foundation; 1972.	-	-	-	-	-	1	-	-	No	No
15-029	National Academy of Sciences. Committee on Pollution. Waste Management and Control. Washington, D.C.: National Academy of Sciences, National Research Council; 1966.	-	-	-	-	-	1	-	1	17	No
15-030	Pitts, Henry L. "Tax Relief for Pollution Control". Commerce (February 1969), p. 18.	-	-	-	-	-	1	-	-	17 06	No
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15-034	Rothenberg, Morris. "Design and Planning". Water and Waste Engineering (February 1969), pp. 30-34.	-	-	-	1	-	-	-	-	No	No
15-035	Science. "Water Pollution: Conservationists Criticize New Permit Program". Science, vol. 171, pp. 266-267.	-	-	-	-	-	1	-	-	06	No
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15-038	State and Interstate Water Pollution Control Administrators. Proceedings: Conference of the Association of State and Interstate Water Pollution Control Administrators. Dayton, Ohio: State and Interstate Water Pollution Control Administrators; 1965.	-	-	-	-	-	1	-	-	06	No
15-039	State of Illinois, Environmental Protection Agency. Water Quality Network, 1971. Summary of Data - Vol. I. Springfield: State of Illinois, EPA; 1971.	-	-	-	-	-	2	-	1	No	No
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15-049	U.S. Department of Interior, Federal Water Quality Control Administration. Storm Water Pollution from Urban Land Activity. Washington, D.C.: U.S. Department of the Interior, Federal Water Quality Control Administration; July 1970.	-	-	-	2	-	2	-	2	No	Yes
15-050	U.S. Department of the Interior, Federal Water Quality Control Administration. Water Pollution Aspects of Urban Runoff. Washington, D.C.: U.S. Department of the Interior, Federal Water Quality Control Administration; January 1969.	-	-	-	-	-	3	-	3	No	Yes
15-051	U.S. Environmental Protection Agency. Cost Effectiveness Checklist. Washington, D.C.: Office of Water Programs, U.S. Environmental Protection Agency; May 1971.	1	-	-	-	-	1	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
15-052	U. S. Environmental Protection Agency. Cost Effectiveness in Water Quality Programs. Washington, D. C.; U. S. Environmental Protection Agency; 1972.	-	2	-	-	-	-	3	2	18	No
15-053	U. S. Environmental Protection Agency, Office of Research and Monitoring. The River Basin Model: An Overview. Washington, D. C.: U. S. Environmental Protection Agency, Office of Research and Monitoring; December 1971.	-	-	-	2	-	-	-	-	No	No
15-054	Vice, R. B. et. al. Sediment Movement in an Area of Suburban Highway Construction, Scott Run Basin, Fairfax County, Virginia, 1961-64. Washington, D. C.: U. S. GPO, Geological Survey Water-Supply Paper 1591-E; 1969.	-	2	-	-	-	-	3	2	18	Yes
15-055	Viessman, Warren, Jr. "Assessing the Quality of Urban Drainage". Public Works, vol. 100:10 (October 1969), pp. 89-92.	-	-	-	-	-	2	-	-	No	No
15-056	Wallace, McHarg, Roberts & Todd, Inc. Maryland Chesapeake Bay Study. Philadelphia, Pennsylvania: Wallace, McHarg, Roberts & Todd, Inc.; March 1972.	-	2	-	-	-	2	2	2	11 07	No
15-057	Water Pollution Control Commission. Water Pollution Control Laws. Olympia, Washington: Water Pollution Control Commission; 1968.	-	-	-	-	-	1	-	-	No	No
15-058	Water Pollution and Water Resources Commission. Report and Recommendations to Governor Kerner and the 75th General Assembly. Chicago, Illinois: Water Pollution and Water Resources Commission; 1967.	-	-	-	-	-	1	1	-	No	No
15-059	Welsh, Joseph et al. The Politics of Pollution Control in Monterey Bay. Stanford, California: Stanford University; 1971.	-	1	-	-	-	-	1	-	No	No
15-060	U. S. Environmental Protection Agency. A Primer on Wastewater Treatment. Washington, D. C.: U. S. GPO; 1971.	2	2	-	-	-	2	-	2	No	Yes

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Reference Number	CODE 15: WATER POLLUTION (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
09-023	U. S. Environmental Protection Agency. Water Quality Office. Cost of Clean Water, Vol. I: Municipal Investment Needs. Washington, D. C.: U. S. Environmental Protection Agency; March 1971.	3	-	-	-	3	3	-	3	09	No
10-003	Schneider, William J. Water Data for Metropolitan Areas. Washington, D. C.: U. S. Geological Survey Water-Supply Paper 1871; 1968.	2	-	-	-	-	-	-	1	10	No
10-004	U. S. Environmental Protection Agency. Water Quality Office. Urban Runoff Characteristics. Prepared by the University of Cincinnati, Department of Civil Engineering. Washington, D. C.: U. S. GPO; 1970.	-	-	-	2	-	-	-	-	10	Yes
11-018	Savini, John and J. C. Kammerer. Urban Growth and the Water Regimen. Washington, D. C.: U. S. GPO; 1961.	2	-	-	2	-	-	-	-	11	Yes
11-029	Water Resources Center. The Christina Basin: The Protection of Water Resources as a Basis for Planning in Developing Areas. Newark, Delaware: Delaware University; April 1972.	-	2	-	-	-	2	2	-	11	Yes
18-001	Beasley, R. P. Erosion and Sediment Pollution Control. Ames, Iowa: The Iowa State University Press; 1972.	-	2	1	-	-	2	-	2	18 10	No
18-002	Guy, H. P. and G. E. Ferguson. "Sediment in Small Reservoirs Due to Urbanization". Proceedings of The American Society of Civil Engineers (March 1962), pp. 27-37.	-	-	2	-	-	-	3	3	18	Yes
18-003	Guy, Harold P. and George E. Ferguson. "Stream Sediment: an Environmental Problem". Journal of Soil and Water Conservation. (November-December 1970), pp. 217-221.	-	1	-	-	-	-	2	-	18	Yes
18-004	Muller, Robert A. "Water Balance Evaluation of Effects of Subdivisions on Water Yield in Middlesex County, New Jersey". Proceedings of the Association of American Geographers, 1969, pp. 121-126.	-	2	-	-	2	2	2	2	18	No

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Reference Number	CODE 15: WATER POLLUTION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
18-006	U. S. Department of the Interior. "Sediment Problems in Urban Areas". Geological Survey Circular 601-E, Washington, D. C.: U. S. Department of Interior; 1970.	-	-	-	-	-	2	-	-	18	Yes
21-136	University of Minnesota/Experimental City Project. Minnesota Experimental City: Volume 2 - Economic and Physical Aspects. Minneapolis, Minnesota: University of Minnesota; 1969.	3	-	-	-	2	-	-	-	21 15	No
22-001	Albertson, Rachel (ed). "Urban Environmental Problems: A Graduate Interdisciplinary Seminar". Engineering Progress, vol. 21:6 (Bulletin 128).	-	-	-	-	-	1	-	-	22	No
22-005	Ayres, Robert U. and Ivar Gutmanis. "Technological Change, Pollution and Treatment Cost Coefficients in Input-Output Analysis". Population, Resources, and the Environment, Volume 3. Washington, D. C.: U. S. Commission on Population Growth and the American Future, U. S. GPO; 1972.	-	-	-	-	-	-	-	1	22 07	Yes
22-010	Chanasyk, Victor. The Haldimand-Norfolk Environmental Appraisal. Volume I. Toronto: Ontario Ministry of Treasury, Economics, and Intergovernmental Relations; 1970.	2	-	-	-	-	3	2	2	22 17	No
22-024	Herfindahl, Orris C. and Allen V. Kneese. Quality of the Environment. Baltimore, Maryland: Resources for the Future, Inc.; 1965.	-	-	-	-	-	2	-	-	22 17	Yes
22-048	Miami Valley Regional Planning Commission. Natural Resources of the Miami Valley Region. Dayton: Miami Valley Regional Planning Commission; 1967.	-	-	-	-	-	1	-	-	22 17	No
22-067	U. S. Department of Commerce, Bureau of the Census. Environmental Quality Control; Expenditure and Employment for Selected Large Governmental Units: Fiscal 1969-1970. Washington, D. C.: U. S. Department of Commerce, Bureau of the Census; 1972.	3	-	-	-	-	-	-	2	22 07	No

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Classification: Tertiary

Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
07-008	George, Patricia Conway. The CMI Report on Solid Waste Control. Washington, D. C.: Communications Marketing CMI Inc.; 1970.	3	3	-	-	-	2	-	2	07 17	Yes
11-005	Gruen, Gruen & Associates. The Impacts of Growth - An Analytical Framework and Fiscal Example. Berkeley, California: The California Better Housing Foundation, Inc.; 1972.	-	3	-	-	2	2	3	3	11 03	Yes
11-012	Kneese, Allen V. "Discharge Capacity of Waterways and Effluent Charges" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 133-152.	2	-	-	2	-	2	-	1	11 09	No
22-015	Council on Environmental Quality. Environmental Quality. Third Annual Report, Washington, D. C.: U. S. GPO; 1972.	-	-	-	1	-	1	-	-	22 17	No
22-032	Jordan, Paul. The Impact of Growth on the Environment of San Jose. Santa Monica, California: The Rand Corporation; February 1973.	-	2	-	-	-	1	-	-	22 17	Yes
22-037	Kneese, Allen V. and Blair T. Bower. Environmental Quality Analysis. Baltimore, Maryland: The John Hopkins Press; 1972.	-	-	-	2	-	2	-	-	22 17	No

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Reference Number	CODE 16: NOISE POLLUTION Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
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16-001	Baron, Robert Alex. The Tyranny of Noise. New York: St. Martin's Press, Inc.; 1970.	1	1	1	-	-	1	2	1	No	No
16-002	Bragdon, Clifford R. "Noise Control in Urban Planning". Journal of the Urban Planning and Development Division, vol. 99:UP1 (March 1973), pp. 15-23.	2	2	-	-	2	2	-	-	No	Yes
16-003	Bragdon, Clifford R. Noise Pollution. Philadelphia, Pennsylvania: University of Pennsylvania Press; 1971.	3	-	-	-	-	3	3	3	23	Yes
16-004	Branch, Melville C. et. al. Outdoor Noise and the Metropolitan Environment: Case Study of Los Angeles with Special Reference to Aircraft. Los Angeles, California Department of City Planning; 1970.	-	-	-	-	2	2	3	1	No	Yes
16-005	Chalupnik, James D. Transportation Noises. Seattle: University of Washington Press; 1970.	-	-	-	-	-	1	-	-	13	No
16-006	Cohen, Alexander. "Location-Design Control of Transportation Noise". Journal of the Urban Planning and Development Division. Proceedings of the American Society of Civil Engineers, vol. 93:UP4 (December 1967), pp. 63-86.	-	-	-	-	-	2	-	-	13	Yes
16-007	Dixon, Ward W. and James E. Fricke (eds.) Noise as a Public Health Hazard. Proceedings of the Conference, June 13-14, 1968, Washington: American Speech's Hearing Association; February 1969.	-	1	-	-	-	1	-	-	No	No
16-008	H. M. Government Committee on the Problem of Noise. Noise: Final Report. H.M. Stationery Office; 1964. (Cmnd. 2056).	-	2	-	-	-	2	-	2	No	Yes
16-009	U.S. Department of Housing and Urban Development. Aircraft Noise and Airport Neighbors: A Study of Logan International Airport. Washington, D.C.: U.S. GPO; March 1970.	3	-	-	-	-	-	3	1	No	No
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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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16-012	U.S. Department of Housing and Urban Development. Noise Assessment Guidelines - Technical Background. Washington, D.C.: Department of Housing and Urban Development; 1972.	2	-	-	-	-	2	-	3	23	Yes
16-013	U.S. Environmental Protection Agency. Community Noise. Washington, D.C.: U.S. Environmental Protection Agency; U.S. GPO; 1971.	-	3	-	-	3	3	3	3	23	Yes
16-014	U.S. Environmental Protection Agency. The Economic Impact of Noise. Washington, D.C.: U.S. Environmental Protection Agency (PB-206726), December 31, 1971.	2	2	-	-	-	3	-	2	23	Yes
16-015	U.S. Environmental Protection Agency. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. Washington, D.C.: U.S. GPO, U.S. Environmental Protection Agency; 1971.	-	-	-	-	-	1	-	-	No	No
16-016	U.S. Environmental Protection Agency. Report to the President and Congress on Noise. Washington, D.C.: U.S. GPO; February 1972.	2	2	2	-	-	3	1	3	23	Yes
16-017	U.S. Environmental Protection Agency. Transportation Noise and Noise from Equipment Powered Internal Combustion Engines. Washington, D.C.: U.S. Environmental Protection Agency, U.S. GPO; 1971.	1	1	1	-	-	-	-	2	No	No
16-018	Lave, Samuel R. Freeway and Highway Traffic Noise: An Information Base for Urban Development Decisions. Los Angeles, California: University of California, Urban Mass Transportation Study, School of Architecture and Urban Planning; August 1971. Available NTIS, Springfield, Virginia.	-	1	-	-	-	2	-	-	13	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 16: NOISE POLLUTION (continued) Classification: Secondary										
13-042	Highway Research Board. Procedures for Estimating Highway User Costs, Air Pollution, and Noise Effects. Washington, D. C.: Highway Research Board, NCHRP Report No. 133; 1972.	-	-	-	-	3	3	3	2	13 17	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 16: NOISE POLLUTION (continued) Classification: Tertiary										
22-068	U. S. Environmental Protection Agency. Land Use and The Environment. Washington, D. C.: U. S. Environmental Protection Agency, Office of Research and Monitoring; 1970.	-	-	-	-	-	2	-	-	22 17	Yes

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17-002	Berwanger, Sydney D. and George V. Wickstrom. Estimating Auto Emissions of Alternative Transportation Systems. Washington, D. C.: Department of Transportation Planning, Metropolitan Washington Council of Governments; April 1972.	3	-	-	3	2	-	2	-	13	Yes
17-003	Branch, Melville C. Air Pollution and City Planning. Los Angeles, California: Environmental Science and Engineering, University of California, Los Angeles; 1972.	3	-	-	-	-	2	3	-	No	Yes
17-004	Department of Transportation. Special Area Analysis - Section B. Air Quality Analysis (unpublished). Prepared by the Federal Highway Administration, Urban Mass Transportation Administration, Federal Aviation Administration and the Office of Assistant Secretary for Policy, Plans and International Affairs; March 1973.	-	-	-	-	3	2	-	3	No	Yes
17-005	Downing, Paul B. Air Pollution and the Social Sciences. New York: Praeger Publishers; 1971.	-	-	-	-	-	1	-	-	No	No
17-006	Gerhardt, Paul H. "Air Pollution Control: Benefits, Costs, and Inducements" in Selma Mushkin's Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 153-172.	2	-	-	-	-	2	-	-	No	No
17-007	Graham, L. J. "The Relation Between Land Use Planning and Air Pollution". Journal of the Town Planning Institute (June 1957), pp. 136-151.	-	1	-	-	-	1	-	-	No	No
17-008	Hagevik, George. The Relationship of Land Use and Transportation Planning to Air Quality Management. New Brunswick, New Jersey: Rutgers University; May 1972.	2	-	-	2	-	3	-	-	No	Yes
17-009	Jaksch, John A. "Air Pollution: Its Effects on Residential Property Values in Toledo, Oregon. Annals of Regional Science, vol. 4:2 (December 1970), pp. 43-52.	-	3	-	2	-	-	-	2	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
17-010	Kurtzweg, Jerry A. "Urban Planning and Air Pollution Control". Journal of the American Institute of Planners, vol. 39:2, March 1973.	-	-	-	3	3	3	3	-	No	No
17-011	Maga, John A. "Vehicular Pollution Effects in Urban Development". Journal of the Urban Planning and Development Division, Vol. 93, No. UP4 (December 1967), pp. 231-241.	2	-	-	-	2	-	-	-	No	Yes
17-012	Mills, Edwin S. "Economic Incentives in Air Pollution Control" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 357-363.	-	-	-	1	-	-	-	-	No	No
17-013	Mukherji, Ahangjit. "Abatement of Atmospheric Pollution". Traffic Quarterly (July 1968), pp. 433-450.	2	2	2	-	-	1	-	-	13	No
17-014	Neiburger, Morris. "What Factors Determine the Optimum Size Area for an Air Pollution Control Program". State and Interstate Air Pollution Control Programs Seminar, UCLA; December 13, 1966.	-	-	-	-	-	2	-	-	No	No
17-015	Nourse, Hugh O. "The Effect of Air Pollution on House Values". Land Economics, vol. 43:2 (May 1967), pp. 181-189.	2	-	-	-	-	2	2	2	01	Yes
17-016	Ridker, Ronald G. "The Economy, Resource Requirements, and Pollution Levels". Population, Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	-	-	-	-	2	2	-	2	No	No
17-017	Ridker, Ronald G. "Strategies for Measuring the Cost of Air Pollution" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 364-374.	-	-	-	-	1	1	-	-	No	No
17-018	Rothenberg, Jerome. "The Economics of Congestion and Pollution: An Integrated View" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 345-356.	-	-	-	2	-	-	-	-	No	No

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Reference Number	CODE 17: AIR POLLUTION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
17-019	Rydell, C. Peter. Air Pollution and Urban Population Distribution. New York, New York: Hunter College Urban Research Center, City University of New York; 1968.	-	-	-	1	-	-	-	-	No	No
17-020	Rydell, C. Peter and Gretchen Schwarz. "Air Pollution and Urban Form: A Review of Current Literature". Journal of the American Institute of Planners vol. 34:2 (March 1968), pp. 115-119.	-	-	-	-	-	-	2	-	No	Yes
17-021	Seinfeld, John H. and Chwan P. Kyan. "Determination of Optimal Air Pollution Control Strategies". Socio-Economic Planning Sciences, vol. 5:3 (June 1971), pp. 173-190.	-	-	-	1	2	-	-	-	No	No
17-022	U.S. Congress (House, 91st, First and Second Sessions). Air Pollution Control and Solid Wastes Recycling. Hearings: Before the Subcommittee on Public Health and Welfare of the Committee on Interstate and Foreign Commerce; December 8-9, 1969; March 5, 16-20, and April 14, 1970.	-	-	-	-	-	-	-	1	07	No
17-023	U.S. Department of Commerce. The Automobile and Air Pollution: A Program for Progress, Part I. Washington, D.C.: U.S. Department of Commerce; October 1967.	-	-	-	-	-	1	-	-	No	No
17-024	U.S. Department of Commerce. The Automobile and Air Pollution: A Program for Progress, Part II. Washington, D.C.: U.S. GPO; October 1967.	2	-	-	-	-	2	-	-	No	No
17-025	U.S. Department of Health, Education and Welfare, National Air Pollution Control Administration. Guidelines for the Development of Air Quality Standards and Implementation Plans. Washington, D.C.: U.S. Department of Health, Education and Welfare, National Air Pollution Control Administration; May 1969.	-	-	-	-	1	-	-	-	No	No
17-026	U.S. Department of Health, Education and Welfare, Public Health Service. Handbook of Air Pollution. Durham, North Carolina: National Center for Air Pollution Control. Distributed by NTIS, Springfield, Virginia; 1968.	-	-	-	-	-	-	-	1	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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17-028	U. S. Environmental Protection Agency. Compilation of Air Pollutant Emission Factors. Research Triangle Park, North Carolina: Office of Air Programs, Environmental Protection Agency; February 1972.	-	-	-	-	-	1	-	-	No	No
17-029	U. S. Environmental Protection Agency. The Economics of Clean Air, Annual Report to Congress. Washington, D. C.: U. S. GPO; March 1972.	-	-	-	-	-	3	-	-	No	Yes
17-030	Alan M. Voorhees and Associates, Inc. Air Quality Considerations in Transportation and Urban Planning: A Five-Year Program Guide. Washington, D. C.: Office of Air Programs and Office of Land Use Planning, Environmental Protection Agency; December 1970. Available NTIS.	2	-	-	-	-	3	-	3	13	Yes
17-031	Alan M. Voorhees and Associates, Inc. A Guide for Reducing Air Pollution Through Urban Planning. Washington, D. C.: Office of Air Programs, Environmental Protection Agency; December 1971.	-	-	-	3	-	3	3	-	13	Yes
17-032	Alan M. Voorhees and Associates, Inc. A Guide for Reducing Automotive Air Pollution. Washington, D. C.: Office of Air Programs, Environmental Protection Agency; November 1971.	-	-	-	-	1	-	-	-	13	No
17-033	Wall, Norbert F. "Pollution and Real Property Value". The Real Estate Appraiser (January-February 1972), pp. 5-11.	-	-	-	-	-	1	-	-	No	No
17-034	Werczberger, Elia. Locational Aspects of Air Quality Policies. Cambridge, Massachusetts: Harvard University (doctoral dissertation); January 1972.	-	-	-	-	-	1	-	-	No	No
17-035	Wieand, Kenneth F. Property Values and the Demand for Clean Air. St. Louis: Committee on Urban Economics; 1970.	-	-	-	1	-	1	-	-	No	No
17-036	Kaman Sciences Corporation. Land Use Planning for Air Quality in the Pikes Peak Area. Colorado Springs, Colorado: Kaman Sciences Corporation; August 1972.	-	2	-	1	-	2	2	-	13	Yes

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Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
	CODE 17: AIR POLLUTION (continued)	Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
17-037	U. S. Department of Health, Education, and Welfare. Calculating Future Carbon Monoxide Emissions and Concentrations from Urban Traffic Data. Washington, D. C.: National Air Pollution Control Administration; (undated).	3	2	-	-	3	2	3	2	No	Yes
17-038	National Tuberculosis and Respiratory Disease Association. Air Pollution Primer. New York, New York: National Tuberculosis and Respiratory Disease Association; 1969.	2	2	-	-	-	2	-	2	No	Yes

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Reference Number	CODE 17: AIR POLLUTION (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
07-008	George, Patricia Conway. The CMI Report on Solid Waste Control. Washington, D. C.: Communications Marketing CMI Inc.; 1970.	3	3	-	-	-	2	-	2	07 15	Yes
13-016	Bellomo, Salvatore J. and Edward Edgerley, Jr. "Ways to Reduce Air Pollution Through Planning Design and Operations". Highway Research Record No. 356. Washington, D. C.: Highway Research Board; 1971, pp. 139-157.	1	-	-	-	-	2	-	-	13	Yes
14-003	Council on Economic Priorities. "The Price of Power: Electric Utilities and the Environment". Economic Priorities Report, vol. 3:2 (May/June 1972), pp. 3-22.	-	-	-	-	-	-	-	1	14	No
15-001	Alessio, Frank J. "The Opportunity Cost of Pollution Abatement in a Steady-State Expanding Economy". The Annals of Regional Science, vol. 5:1 (June 1971), pp. 84-92.	-	-	-	-	2	2	-	-	15	No
15-011	Council of State Governments. Environmental Quality and State Government. Lexington, Kentucky: Council of State Governments; 1970.	-	-	-	-	-	1	-	-	15 07	No
15-013	The Environmental Quality Board. Environmental Report 1971. San Juan, Puerto Rico: The Environmental Quality Board; 1971.	-	1	-	-	-	-	1	-	15 07	No
15-024	Kneese, Allen V. "Rationalizing Decisions in the Quality Management of Water Supply in Urban-Industrial Areas" in Edel and Rothenberg's (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 375-397.	-	-	-	-	-	1	-	-	15	No
15-029	National Academy of Sciences. Committee on Pollution. Waste Management and Control. Washington, D. C.: National Academy of Sciences, National Research Council; 1966.	-	-	-	-	-	1	-	1	15	No

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Reference Number	CODE 17: AIR POLLUTION (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
15-030	Pitts, Henry L. "Tax Relief for Pollution Control". Commerce (February 1969), p. 18.	-	-	-	-	-	1	-	-	15 06	No
15-045	U.S. Department of Health, Education and Welfare, Public Health Service. Symposium on Environmental Measurements: Valid Data and Logical Interpretation. Cincinnati, Ohio: Robert A. Taft Sanitary Engineering Center, Public Health Service; July 1964.	-	-	-	2	-	2	-	2	15	No
22-015	Council on Environmental Quality. Environmental Quality. Third Annual Report. Washington, D.C.: U.S. GPO; 1972.	-	-	-	1	-	1	-	-	22 15	No
22-019	Council on Environmental Quality. Environmental Quality. Second Annual Report. Washington, D.C.: U.S. GPO; 1971.	1	1	-	-	-	2	-	2	22 07	No
22-027	Hoch, Irving. "Urban Scale and Environmental Quality". Population, Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	2	2	2	-	-	3	-	3	22 07	Yes
22-032	Jordan, Paul. The Impact of Growth on the Environment of San Jose. Santa Monica, California: The Rand Corporation; February 1973.	-	2	-	-	-	1	-	-	22 15	Yes
22-037	Kneese, Allen V. and Blair T. Bower. Environmental Quality Analysis. Baltimore, Maryland: The Johns Hopkins Press; 1972.	-	-	-	2	-	2	-	-	22 15	No
22-068	U.S. Environmental Protection Agency. Land Use and The Environment. Washington, D.C.: U.S. Environmental Protection Agency, Office of Research and Monitoring; 1970.	-	-	-	-	-	2	-	-	22 16	Yes

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Reference Number	CODE 17: AIR POLLUTION (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
13-042	Highway Research Board. Procedures for Estimating Highway User Costs, Air Pollution, and Noise Effects. Washington, D. C.: Highway Research Board, NCHRP Report No. 133; 1972.	-	-	-	-	3	3	3	2	13 16	Yes
15-022	Kneese, Allen V., et. al. Managing the Environment. New York, New York: Praeger Publishers, Inc.; 1971.	-	-	-	-	-	2	-	1	15 07	No
21-150	Crouch, R. L. and R. E. Weintraub "Cost-Benefit Analysis of a PUD." Urban Land, vol. 32:6 (June 1973), pp. 3-13.	-	2	-	-	3	2	2	2	21 03	Yes
22-010	Chanasyk, Victor. The Haldimand-Norfolk Environmental Appraisal. Volume I. Toronto: Ontario Ministry of Treasury, Economics, and Intergovernmental Relations; 1970.	2	-	-	-	-	3	2	2	22 15	No
22-024	Herfindahl, Orris C. and Allen V. Kneese. Quality of the Environment. Baltimore, Maryland: Resources for the Future, Inc.; 1965.	-	-	-	-	-	2	-	-	22 15	Yes
22-048	Miami Valley Regional Planning Commission. Natural Resources of the Miami Valley Region. Dayton, Ohio: Miami Valley Regional Planning Commission; 1967.	-	-	-	-	-	1	-	-	22 15	No

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Reference Number	CODE 18: EROSION Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
18-001	Beasley, R. P. Erosion and Sediment Pollution Control. Ames, Iowa: The Iowa State University Press; 1972.	-	2	1	-	-	2	-	2	15 10	No
18-002	Guy, H. P. and G. E. Ferguson. "Sediment in Small Reservoirs Due to Urbanization". Proceedings of The American Society of Civil Engineers (March 1962), pp. 27-37.	-	-	2	-	-	-	3	3	15	Yes
18-003	Guy, Harold P. and George E. Ferguson. "Stream Sediment: an Environmental Problem". Journal of Soil and Water Conservation (November-December 1970), pp. 217-221.	-	1	-	-	-	-	2	-	15	Yes
18-004	Muller, Robert A. "Water Balance Evaluation of Effects of Subdivisions on Water Yield in Middlesex County, New Jersey". Proceedings of the Association of American Geographers; 1969, pp. 121-126.	-	2	-	-	2	2	2	2	15	Yes
18-005	Southeastern Wisconsin Regional Planning Commission. Soils Development Guide. Waukesha, Wisconsin: Southeastern Wisconsin Regional Planning Commission; August 1969.	3	3	3	-	3	2	3	2	11 22	Yes
18-006	U.S. Department of the Interior. "Sediment Problems in Urban Areas". Geological Survey Circular 601-E, Washington, D.C.: U.S. Department of Interior; 1970.	-	-	-	-	-	2	-	-	15	Yes
18-007	U.S. Department of the Interior, Federal Water Quality Administration. Urban Soil Erosionand Sediment Control. Prepared by the National Association of Counties Research Foundation. Washington, D.C.: U.S. GPO; 1970.	-	2	-	-	-	3	-	-	No	Yes
18-008	Keller, F. J. Effect of Urban Growth on Sediment Discharge - Northwest Branch Anacosta River Basin, Maryland. Washington, D.C.: U.S. Geological Research, U.S. GPO; 1962.	-	-	-	-	-	2	2	-	No	Yes
18-009	U. S. Environmental Protection Agency. Guidelines for Erosion and Sediment Control: Planning and Implementation. Prepared by the State of Maryland Department of Water Resources. Washington, D.C.: U. S. GPO; 1972.	-	2	-	-	2	3	2	-	No	Yes

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Reference Number	CODE 18: EROSION (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
13-004	American Association of State Highway Officials. Geometric Design Guide for Local Roads and Streets, Part I: Rural. Washington, D. C.: AASHO; 1970.	-	-	3	-	-	-	-	2	13	Yes
15-016	Harza Engineering Co. Watershed Planning Program for Buffalo and McDonald Creeks: Prospectus. Wheeling, Illinois; March 1968.	-	-	1	-	-	-	2	-	15	No
15-019	Interstate Commission on the Potomac River Basin. Land Runoff -- A Factor in Potomac Basin Pollution. Harrisonburg, Virginia: Interstate Commission on the Potomac River Basin; July 1967.	-	-	-	-	-	2	2	-	15	Yes
15-052	U. S. Environmental Protection Agency. Cost Effectiveness in Water Quality Programs. Washington, D. C.: U. S. Environmental Protection Agency; 1972.	-	2	-	-	-	-	3	2	15	Yes
15-054	Vice, R. B. et. al. Sediment Movement in an Area of Suburban Highway Construction, Scott Run Basin, Fairfax County, Virginia, 1961-64. Washington, D. C.: U. S. GPO, Geological Survey Water-Supply Paper 1591-E; 1969.	-	2	-	-	-	-	3	2	15	Yes

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Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
	CODE 18: EROSION (continued) Classification: Tertiary	Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-151	State of Hawaii, Department of Planning and Economic Development. Central Oahu Planning Study. A Summary Report and four technical supplements. Honolulu, Hawaii. Planning Division, Department of Planning and Economic Development; October 1972.	2	-	-	-	-	2	2	2	01 02	Yes

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Reference Number	CODE 19: TIME CONSUMPTION Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
19-001	Allouche, Jean F. "Approach to Probability Distribution of Value of Walking Time and Pedestrian Circulation Models". Highway Research Record No. 392, Washington, D. C.: Highway Research Board; 1972, pp. 121-133.	-	-	-	2	-	-	-	-	No	Yes
19-002	Bellomo, Salvatore J. et. al. Factors, Trends, and Guidelines Related to Trip Length. National Cooperative Highway Research Program Report 89. Washington, D. C.: Highway Research Board; 1970.	1	-	-	-	-	2	2	-	13	Yes
19-003	Gronau, Reuben. "The Effect of Traveling Time on the Demand for Passenger Transportation". Journal of Political Economy, vol. 78:2 (March/April 1970), pp. 377-395.	2	2	-	1	-	-	-	-	No	Yes
19-004	Illinois Department of Public Works. "Derivation of Rider Costs and Savings for STAC Station Closure Analysis". Southward Transit Area Coordination Study. Appendix C., pp. 153-157.	-	-	-	-	-	1	-	1	13	No
19-005	Lisco, Thomas. The Value of Commuters' Travel Time - A Study in Urban Transportation. Chicago: The University of Chicago (dissertation); June 1967.	2	-	-	2	-	2	2	2	No	Yes
19-006	Parsonson, Peter S. "A System to Monitor the Road-User Cost of Urban Traffic Congestion". Highway Research Record No. 383. Washington, D. C.: Highway Research Board; 1972, pp. 1-10.	-	-	1	-	-	1	-	-	13	No
19-007	Sawhill, Roy B. et al. "Vehicle Characteristics of Fuel and Travel Time on Urban Arterials and Freeways". Highway Research Record No. 314. Washington, D. C.: Highway Research Board; 1970, pp. 41-60.	-	-	-	-	-	2	-	-	13	Yes
19-008	Smolensky, Eugene; T. Nicholas Tideman; and Donald Nichols. "Waiting Time as a Congestion Charge" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 95-104.	-	-	-	1	-	2	-	-	23	No
19-009	Thomas, Thomas C. and Gordon I. Thompson. "The Value of Time for Commuting Motorists as a Function of their Income Level and Amount of Time Saved". Highway Research Record No. 314. Washington, D. C.: Highway Research Board; 1970, pp. 1-19.	-	-	-	-	-	2	-	-	13	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
19-010	Thomas, Thomas C. and Gordon I. Thompson. "Value of Time Saved by Trip Purpose". Highway Research Record No. 369. Washington, D. C.: Highway Research Board; 1971, pp. 104-117.	-	-	-	-	-	-	-	2	No	Yes
19-011	Alan M. Voorhees and Associates, Inc. Reston Transportation Study. McLean, Virginia: Alan M. Voorhees and Associates, Inc.; 1970.	-	3	2	-	2	3	3	3	13 23	Yes
19-012	Watson, Peter L. "Problems Associated with Time and Cost Data Used in Travel Choice Modeling and Valuation of Time". Highway Research Record No. 369. Washington, D. C.: Highway Research Board; 1971, pp. 148-158.	-	-	-	2	-	2	-	-	23	Yes
19-013	Wheeler, James O. "The Structure of Metropolitan Work-Trips". Professional Geographer; May 1970, pp. 152-158.	2	-	-	1	-	-	-	1	No	No
19-014	Wohl, Martin. "Congestion Toll Pricing for Public Transport Facilities". Highway Research Record No. 314. Washington, D. C.: Highway Research Board; 1970, pp. 20-31.	-	-	-	-	-	1	-	-	13	No
19-015	Highway Research Board. Factors and Trends in Trip Lengths, Report 48. Washington, D. C.: Highway Research Board; 1968.	2	2	-	2	2	2	-	3	13	Yes
19-016	System Development Corporation. A Survey of Average Driving Patterns in Six Urban Areas of the United States: Summary Report. Santa Monica, California: System Development Corporation; 1971.	3	2	-	-	-	1	2	3	13	Yes
19-017	U. S. Department of Transportation. Federal Highway Administration, Nationwide Personal Transportation Study. 7 reports. Washington, D. C.: U. S. Department of Transportation; 1973.	2	-	-	-	-	3	-	3	13	Yes
19-018	Walker, Kathryn E. and William H. Gauger. The Dollar Value of Household Work. Ithaca, New York: New York State College of Human Ecology, Cornell University; 1973.	-	-	-	-	-	2	-	2	No	Yes

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Reference Number	CODE 19: TIME CONSUMPTION (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
13-006	American Association of State Highway Officials. Road User Benefit Analyses for Highway Improvements. Part I: Passenger Cars in Rural Areas. Washington, D. C.: AASHO; 1960.	-	-	-	-	2	-	-	-	13	No
13-010	Bailey, S. Stuart and Harry T. Dimitriou. "The Commuter and 'Park and Ride'". Traffic Quarterly, vol. 26:4 (October 1972), pp. 561-574.	1	-	-	-	-	2	-	-	13	No
13-021	Boston Transportation Planning Review. Harbor Crossing: Summary. Boston: Boston Transportation Planning Review; September 1972.	2	-	-	1	-	2	-	-	13 20	Yes
13-049	Lave, Lester B. Transportation, City Size, and Congestion Tools. Santa Monica, California: The Rand Corporation; April 1969.	3	-	-	3	-	1	-	-	13 23	No
13-081	Alan M. Voorhees and Associates, Inc. Boston Transportation Planning Review: Summary and Evaluation. Boston: Alan M. Voorhees and Associates, Inc.; October 1972.	-	2	-	1	-	2	-	2	13 22	Yes
13-083	Walters, A. A. "The Theory and Measurement of Private and Social Cost of Highway Congestion" in Edel and Rothenberg's (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 417-436.	-	-	-	-	-	1	1	-	13	No
13-085	Winnie, Richard E. and Harry P. Hatry. Measuring the Effectiveness of Local Government Services: Transportation. Washington, D. C.: The Urban Institute; 1972.	-	-	-	-	1	-	-	-	13	No
13-086	Wohl, Martin and Brian V. Martin. Evaluation of Mutually Exclusive Design Projects. Highway Research Board Special Report No. 92. Washington, D. C.: Highway Research Board; 1967.	-	-	-	-	-	-	-	2	13	No
13-093	Institute of Traffic Engineers. Traffic Engineering Handbook. Washington, D. C.: Institute of Traffic Engineers; 1965.	2	2	2	2	2	3	1	3	13 20	Yes
22-043	Livingston and Blayney, City and Regional Planners. Santa Rosa Optimum Growth Study. Santa Rosa, California: Santa Rosa Planning Department; January 1973.	-	2	-	-	-	2	2	2	22 01	Yes

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Reference Number	CODE 19: TIME CONSUMPTION (continued) Classification: Tertiary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
08-021	Cleveland, Donald E. and Edward A. Mueller. Traffic Characteristics at Regional Shopping Centers. New Haven, Connecticut: Bureau of Highway Traffic, Yale University; 1961.	-	-	-	-	2	2	2	3	08 13	Yes
08-022	Los Angeles Regional Transportation Study. 1961 Shopping Center Study: Preliminary Results. Los Angeles, California: Los Angeles Regional Transportation Study, Division of Highways, State of California; 1962.	-	-	-	-	-	-	3	3	08 13	Yes
13-067	Southern California Rapid Transit District. Final Report. Los Angeles, California: Southern California Rapid Transit District; 1968.	2	-	-	-	-	-	1	2	13 20	Yes
13-094	Highway Research Board. Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants, Report 24. Washington, D. C.: Highway Research Board; 1966.	3	-	-	1	2	3	3	2	13 08	Yes
13-095	Institute of Traffic Engineers. Trip Generation. Los Angeles, California: Institute of Traffic Engineers, Western Section; 1967.	3	-	-	-	2	3	2	3	13 08	Yes
13-096	Institute of Traffic Engineers. "Trip Generation Study of Selected Commercial and Residential Developments". Traffic Engineering (March 1970), pp. 40-47.	3	3	-	-	-	3	2	3	13 08	Yes
13-097	Institute of Traffic Engineers. "Trip Generation of Shopping Centers". Traffic Engineering (September 1969), pp. 32-35.	3	3	-	-	-	3	2	3	13 08	Yes

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Reference Number	CODE 20: PUBLIC HEALTH AND SAFETY Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
20-001	Appleyard, Donald and Mark Lintell. "Environmental Quality of City Streets: The Residents' Viewpoints". Highway Research Record No. 356; 1971, pp. 69-84.	-	-	-	-	-	1	-	-	13	Yes
20-002	Baker, William T. "An Evaluation of the Traffic Conflicts Technique". Highway Research Record No. 384. Washington, D. C.: Highway Research Board; 1972, pp. 1-8.	-	-	-	-	2	-	-	-	13	No
20-003	Boyce, Shirley. "High Rise Fire". Buildings (July 1971), pp. 36-41.	-	-	-	-	-	1	-	1	05 01	No
20-004	Cribbins, P. D. et. al. "Effects of Selected Broadway and Operational Characteristics on Accidents on Multilane Highways". Highway Research Record No. 188. Washington, D. C.: Highway Research Board; 1967, pp. 8-25.	-	-	-	-	-	2	-	-	13	Yes
20-005	Cribbins, P. S. et. al. "Median Openings on Divided Highways: Their Effect on Accident Rates and Level of Service". Highway Research Record No. 188. Washington, D. C.: Highway Research Board; 1967, pp. 140-157.	-	-	-	-	-	2	-	-	13	Yes
20-006	Drake, Gerard L. and Merwyn A. Kraft. "Motor Vehicle Accident Costs in the Washington Metropolitan Area". Highway Research Record No. 188. Washington, D. C.: Highway Research Board; 1967, pp. 127-139.	-	-	-	-	-	2	-	-	13	Yes
20-007	Fee, Julie A. et. al. Interstate System Accident Research Study - I. Washington, D. C.: U.S. Department of Transportation, Federal Highway Administration; October 1970. Available U.S. GPO.	-	-	-	-	-	2	-	-	13	Yes
20-008	General Services Administration. Public Buildings Service - International Conference on Fire Safety in High-Rise Buildings. Washington, D. C.: U.S. GPO; May 1971.	-	-	-	-	-	-	-	2	05 01	Yes
20-009	Haefner, Lonnie E. and Edward K. Morlok. "Optimal Geometric Design Decisions for Highway Safety". Highway Research Record No. 371. Washington, D. C.: Highway Research Board; 1971, pp. 12-23.	-	-	-	1	-	-	-	-	13	No

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Reference Number	CODE 20: PUBLIC HEALTH AND SAFETY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
20-010	Heaton, Carla J. "A Comparison of Motor Vehicle Accident Cost Data". Highway Planning Technical Report No. 21. Washington, D.C.: U.S. Federal Highway Administration; 1971.	-	-	-	-	-	2	-	-	13	No
20-011	Huelke, Donald F. and Paul W. Gikas. "Non-Intersectional Automobile Fatalities -- A Problem in Roadway Design". Highway Research Record No. 152. Washington, D.C.: Highway Research Board; 1967, pp. 103-119.	-	-	-	-	-	-	1	-	13	No
20-012	Matteson, James H. et. al. Accident Rates and Costs on Urban Arterials and Freeways. Seattle: University of Washington, Traffic and Operation Series, Research Report No. 148; January 1970.	-	-	-	-	-	-	1	-	13	No
20-013	Newman, Oscar. Defensible Space: Crime Prevention Through Urban Design. New York: The MacMillan Company; 1972.	-	-	-	-	-	3	-	3	01	Yes
20-014	Perkins, Stuart R. "Traffic Conflict Characteristics-- Accident Potential at Intersections". Highway Research Record No. 225. Washington, D.C.: Highway Research Board; 1968, pp. 35-43.	-	-	-	-	1	-	-	-	13	No
20-015	Rolf Jensen and Associates. A Study of the Fire Problem in Residential High Rise Buildings. Northfield, Illinois: Rolf Jensen and Associates, Inc.; February 25, 1972.	-	-	-	-	-	2	-	2	05 01	Yes
20-016	Skyscraper Management. "Suggested Guidelines for Building Security Procedures". Skyscraper Management (July 1970), pp. 12-14.	-	1	-	-	-	1	-	-	01	No
20-017	Souter, Gerry. "The High Rise Home: Castle Under Seige". The Chicago Guide (October 1971), pp. 11-14.	-	2	-	-	-	1	-	-	01	No
20-018	Southern California Association. Handbook of Crime Prevention Bulletins - Crime Prevention Through Physical Planning. Los Angeles: Southern California Association of Governments; September 1971.	-	-	-	-	-	2	-	-	No	Yes
20-019	Van Wagoner, Wayne T. "Highway Environmental Safety Design Practices: A Topical Review", Highway Research Record No. 332. Washington, D.C.: Highway Research Board; 1970, pp. 14-27.	-	-	-	-	-	1	-	-	13	No

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Reference Number	CODE 20: PUBLIC HEALTH AND SAFETY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
20-020	National Safety Council. Accident Facts, 1971. Chicago, Illinois: National Safety Council; 1971.	-	-	-	-	-	-	-	3	No	Yes
20-021	U. S. Department of Transportation. Federal Highway Administration. Fatal and Injury Accident Rates on Federal-Aid and Other Highway Systems, 1970. Washington, D. C.: Federal Highway Administration; 1971.	3	2	2	-	-	-	-	3	No	Yes
20-022	Arthur D. Little, Inc. Cost-Effectiveness in Traffic Safety. New York, New York: Frederick A. Praeger; 1968.	3	2	1	2	2	3	2	3	No	Yes

GENERAL BIBLIOGRAPHY

Reference Number	CODE 20: PUBLIC HEALTH AND SAFETY (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-055	International Conference of Building Officials. Uniform Building Code. Pasadena, California: ICBO; 1967.	-	-	-	-	-	-	-	2	01 06	Yes
05-021	U.S. Department of Justice. Federal Bureau of Investigation. Uniform Crime Reports for the United States. Washington, D.C.: Department of Justice; 1971.	3	3	3	-	-	1	1	3	05	Yes
08-023	Skokie Police Department (Skokie, Illinois). Shopping Center Survey. Skokie, Illinois: Skokie Police Department; 1963.	-	-	-	-	-	1	3	2	08	Yes
13-067	Southern California Rapid Transit District. Final Report. Los Angeles: Southern California Rapid Transit District; 1968.	2	-	-	-	-	-	1	2	13 19	Yes

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Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
	CODE 20: PUBLIC HEALTH AND SAFETY (continued) Classification: Tertiary										
01-006	American Public Health Association, Committee on the Hygiene of Housing. Planning the Neighborhood. Chicago: Public Administration Service; 1960.	-	2	-	-	-	2	-	2	01 09	Yes
13-021	Boston Transportation Planning Review. Harbor Crossing: Summary. Boston, Massachusetts: Boston Transportation Planning Review; September 1972.	2	-	-	1	-	2	-	-	13 19	Yes
13-093	Institute of Traffic Engineers. Traffic Engineering Handbook. Washington, D. C.: Institute of Traffic Engineers; 1965.	2	2	2	2	2	3	1	3	13 19	Yes

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Reference Number	CODE 21: NEW TOWNS/PLANNED COMMUNITIES Classification: Primary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-001	Advisory Committee to the Department of Housing and Urban Development. Urban Growth and Land Development: The Land Conversion Process. Report of the Subcommittee on Land Use. Washington, D. C.: National Academy of Sciences; 1972.	2	2	-	-	-	2	-	3	No	Yes
21-002	Advisory Commission on Intergovernmental Relations. "New Communities in America and Their Objectives". Urban and Rural America: Policies for Future Growth. Washington, D. C.: Advisory Commission on Intergovernmental Relations; 1967.	-	1	-	-	-	1	-	-	No	No
21-003	American Builder. "New Towns Won't Provide the Answer to Suburban Sprawl". American Builder (November 1968), pp. 52-54.	-	1	-	-	-	1	-	-	No	No
21-004	American City Corporation. City Building: Experience, Trends, and New Directions. Columbia, Maryland: The American City Corporation; 1971.	-	1	-	-	-	1	-	-	No	No
21-005	The American City Corporation. The Greater Hartford Process. Columbia, Maryland: The American City Corporation; April 1972.	3	-	-	-	-	2	-	-	No	No
21-006	American Institute of Planners. New Communities: Challenge for Today. Washington, D. C.: AIP Background Paper Number Two; 1968.	-	1	-	-	-	1	-	-	No	No
21-007	American Institute of Planners. "Toward Better New Communities on the Urban Fringe". Proceedings, 1963. Washington: American Institute of Planners; 1964, pp. 155-171.	-	-	-	-	-	1	-	-	No	No
21-008	Apartment Construction News. "Land Use Ratios for Big P. U. D. s". Apartment Construction News; August 1971.	-	2	-	-	-	-	-	1	01 02	Yes
21-009	Apgar, Mahlon IV. Managing Community Development: The Systems Approach in Columbia, Maryland. New York: McKinsey and Company, Inc.; 1971.	-	2	-	-	-	1	1	-	No	No
21-010	Architectural Record. "Montgomery-A New Town Within A Corridor City is Shaped by New Planning Concepts Required by Improved Zoning Code". Architectural Record (July 1967), pp. 134-141.	-	1	-	-	-	1	-	-	No	No

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Reference Number	CODE 21: NEW TOWNS (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-011	Arizona Legislative Council. Interim Committee on Planned Communities. Phoenix, Arizona: Arizona Legislative Council; 1969.	-	1	-	-	-	-	-	1	No	No
21-012	Associated Home Builders of the Greater Eastbay, Inc. The Planned Unit Development Handbook (revised). Berkeley, California: Associated Home Builders of the Greater Eastbay, Inc.; 1972.	-	2	-	-	-	3	-	2	No	Yes
21-013	Badcock, B. A. "Preliminary Note on the Study of Intra-Urban Physiognomy". Professional Geographer (July 1970), pp. 189-196.	-	-	-	1	-	-	-	-	No	No
21-014	Blair, Frederick H. "Applying Land Use Intensity to Public Regulation". Urban Land, vol. 26:4 (April 1967), p. 8.	-	-	1	-	-	2	-	-	No	No
21-015	Breckenfeld, Gurney. Columbia and the New Cities. New York, N.Y.: Ives Washburn, Inc.; 1971.	-	2	-	-	-	-	2	2	No	No
21-016	Bryan, Jack. "Main Street Revived in Midwest New Town". Journal of Housing, vol. 29:6; June 20, 1972.	-	2	-	-	-	-	-	2	No	No
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21-135	U. S. News & World Report. "New Cities: A Look at the Future". U. S. News & World Report; 1972.	-	-	-	-	-	1	-	-	No	No
21-136	University of Minnesota/Experimental City Project. Minnesota Experimental City: Volume 2 - Economic and Physical Aspects. Minneapolis, Minnesota: University of Minnesota; 1969.	3	-	-	-	2	-	-	-	15 13	No
21-137	Urban Land Institute. "How Do You Like Living in a Planned Community?" Urban Land, vol. 31:1 (January 1972), pp. 3-13.	-	2	-	-	-	3	3	-	23	Yes
21-138	Urban Land Institute. "Is Dispersal the Answer to Urban 'Overgrowth'?". Urban Land, vol. 29:1 (January 1970), pp. 3-12.	-	3	-	-	-	-	3	3	01	Yes
21-139	The Urban Planning Department, The Rust Engineering Co. Nouville: A Pre-Application To The Department of Housing and Urban Development. Birmingham, Alabama: The Urban Planning Department, The Rust Engineering Company; November 1971.	2	-	-	-	-	1	-	1	01	No
21-140	Urban Studies Center. Newcom Technical Supplement. Louisville, Kentucky: University of Louisville; November 1, 1971.	-	1	-	-	-	-	-	1	No	No
21-141	Virginia Town and City. "Reston: The New Town". Virginia Town and City, vol. 3:1 (January 1968), pp. 10-12.	-	3	-	-	-	1	-	-	No	No
21-142	Von Eckardt, Wolf. "A Fresh Scene in the Clean Dream". Saturday Review (May 15, 1971), pp. 21-23.	-	1	-	-	-	1	-	-	23	No
21-143	Wallace, McHarg, Roberts and Todd. MetroCenter/Baltimore Technical Study: A Report of the Regional Planning Council and the Baltimore City Department of Planning; 1970.	3	-	-	-	-	2	2	2	No	No

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21-145	Weiss, Shirley (ed.) et. al. New Community Development. Vol. I. Chapel Hill, North Carolina: University of North Carolina New Towns Research Seminar; 1971.	-	-	-	2	2	2	-	-	22	No
21-146	Weiss, Shirley (ed.) et. al. New Community Development. Vol. 2. Chapel Hill, North Carolina: University of North Carolina New Towns Research Seminar; 1971.	-	2	-	1	-	-	2	-	No	No
21-147	Weissbourd, Bernard. "Satellite Communities". Urban Land, vol. 31:9 (October 1972), pp. 3-18.	-	-	-	-	-	1	-	-	No	No
21-148	Willmott, Peter. Evolution of a Community. London: Routledge and Kegan Paul; 1963.	-	2	-	-	-	1	2	-	01 02	No
21-149	Wissink, G. A. American Cities in Perspective. New York: The Humanities Press; June 1963.	-	2	-	-	-	1	-	-	No	No
21-150	Crouch, R. L. and R. E. Weintraub "Cost-Benefit Analysis of a PUD". Urban Land, vol. 32:6 (June 1973), pp. 3-13.	-	2	-	-	3	2	2	2	03 17	Yes
21-151	Educational Facilities Laboratories, Inc. New Towns, New Schools? Working Paper No. 1. New York, New York: Educational Facilities Laboratory, Inc.; November 1972.	-	1	-	-	-	1	-	-	03	Yes
21-152	Educational Facilities Laboratories, Inc. Schools for New Towns. Working Paper No. 2. New York, New York: Educational Facilities Laboratory, Inc.; May 1973.	-	-	-	-	-	1	-	1	03	Yes
21-153	U.S. Postal Service Headquarters, Economic Analysis Division. New Towns and the U.S. Postal Service: Some Guidelines for Postal Officials and New Town Developers. Washington, D.C.: U.S. Postal Service Headquarters; Economic Analysis Division; 1973.	-	2	-	-	-	2	-	-	No	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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01-060	Kettaneh, Anthony, ed. Project Romulus: An Adaptable High Density Urban Prototype. Cambridge, Massachusetts: The M.I.T. Press, M.I.T. Report No. 12; 1968.	-	2	-	3	3	3	-	3	01 13	Yes
01-126	Sussna, Stephan. "Residential Densities or a Fool's Paradise". Land Economics, vol. 49:1 (February 1973), pp. 1-13.	-	-	2	-	-	2	1	-	01	No
01-138	Urban Land Institute. Innovations vs. Traditions in Community Development. Washington, D.C.: ULI Technical Bulletin No. 47; 1963.	-	3	-	-	-	3	3	3	01	Yes
02-004	Brazell, E. C. "Comparative Costs for Open Space Communities: Rancho Bernardo Case Study". Land-Use Controls, vol. 1:4 (1967), pp. 35-40.	2	-	-	-	-	-	3	3	02	Yes
02-046	Whyte, William H. The Last Landscape. Garden City, New York: Doubleday & Company, Inc.; 1968.	-	-	-	-	-	1	-	-	02	No
05-001	Columbia Today. "The Volunteer Firemen". Columbia Today (November 1970); pp. 20-22.	-	2	-	-	-	-	-	1	05	No
06-034	Shoup, Donald C. and Ruth P. Mack. Advance Land Acquisition by Local Governments. New York, New York: Institute of Public Administration; 1968.	-	1	-	-	-	2	-	-	06	No
08-019	Weiss, E. B. "Department Stores as New Town Builders". Stores (December 1971); pp. 41-42.	-	1	-	-	-	1	-	-	08	No
12-013	Fettig, Lee E. "New Towns and the Gas Industry's Involvement". American Gas Association Monthly (September 1971), pp. 10-12.	-	1	-	-	-	1	-	-	12	No

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13-012	Baumann, Dwight M. B. "Compatible Automation of New Town Transportation". Workshop on Transportation for New Towns and Communities. Washington, D. C.: Institute of Public Administration (NTIS); December 1969.	-	-	-	-	-	1	-	-	13	No
13-033	Evans, Henry K. "Transportation Planning Criteria for New Towns". Highway Research Record No. 97. Washington, D. C.: Highway Research Board; 1965, pp. 30-51.	-	1	-	-	-	1	1	1	13	Yes
13-046	Kwantes, Peter W. "Transportation Aspects of Multi-Use Centers. Traffic Quarterly, vol. 26:4 (October 1972), pp. 517-532.	-	-	1	-	-	1	-	-	13	No
13-056	Morris, Robert L. "Transportation Planning for New Towns". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 104-116.	-	-	-	-	-	2	-	-	13	Yes
13-060	Real Estate Research Corporation. Financial Analysis Models for New Communities. Chicago: Real Estate Research Corporation; 1972.	1	2	-	1	-	-	3	3	13 10	Yes
13-061	Regional Economic Development Institute, Inc. Transportation Requirements and Effects of New Communities - Study in New Systems of Urban Transportation. Pittsburgh, Pennsylvania. Distributed by NTIS, Springfield, Virginia; 1968.	-	-	-	-	2	2	2	-	13	Yes
13-064	Salley, Marjorie A. "Public Transportation and the Needs of New Communities". Traffic Quarterly, vol. 26 (January 1972), pp. 33-51.	-	2	-	-	2	-	-	-	13	No
13-069	Stevens, Robert D. and George J. Bacalis. "Transportation for a New Town". Highway Research Record No. 367. Washington, D. C.: Highway Research Board; 1971, pp. 9-16.	-	2	-	-	-	3	-	-	13	Yes
13-070	Sunderland, Lowell E. "Can Mass Transit Really Work". Columbia Today (September 1970), pp. 8-14.	-	2	-	-	-	2	-	-	13	No

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15-014	Environmental Science and Technology. "Reusing Storm Runoff". Environmental Science and Technology, vol. 2:11 (November 1968), pp. 1001-1005.	-	2	-	2	-	-	2	2	15	Yes
23-019	Werthman, Carl, Jerry Mandel, and Ted Dienstfrey. Planning and the Purchase Decision: A Study of Why People Buy in Planned Communities. Prepared for the Community Development Project; 1965.	-	3	-	-	-	3	2	2	23 01	Yes
23-021	Zehner, Robert B. "Neighborhood and Community Satisfaction in New Towns and Less Planned Suburbs". Journal of the American Institute of Planners, vol. 37:6 (November 1971), pp. 379-387.	-	2	-	-	-	2	-	-	23	Yes
23-022	Institute for Environmental Studies. Case Studies of Six Planned New Towns. Lexington, Kentucky: Institute for Environmental Studies, University of Kentucky; March 1973.	-	2	-	-	-	2	3	3	23	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-013	Baird, John et. al. "Student Planning of Town Configuration". Environment and Behavior, vol. 4:2 (1972), pp. 159-188.	-	3	3	-	-	2	-	-	01 08	No
06-030	Real Estate Research Corporation. Fiscal Impact Models for New Communities. Chicago, Illinois: Real Estate Research Corporation; 1972.	-	3	-	1	-	-	2	2	06 03	Yes
13-062	Rodwin, Lloyd. "New Towns, Urban Growth Strategies and Transportation". Workshop on Transportation for New Towns and Communities. Washington, D. C.: Institute of Public Administration (NTIS); December 1969.	-	-	-	-	-	1	-	-	13 01	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
22-001	Albertson, Rachel (ed). "Urban Environmental Problems: A Graduate Interdisciplinary Seminar". Engineering Progress, vol. 21:6 (Bulletin 128).	-	-	-	-	-	1	-	-	15	No
22-002	Association of Bay Area Governments. Regional Plan 1970-1990: San Francisco Bay Region. Berkeley, California: Association of Bay Area Governments; July 1970.	-	-	-	-	2	-	1	-	No	No
22-003	Associated Home Builders of the Greater East Bay, Inc. Suggested Guidelines for Environmental Impact Statements. Berkeley, California: Associated Home Builders of the Greater East Bay, Inc.; 1971.	-	-	-	-	2	-	-	-	No	No
22-004	Ayres, Robert U. and Allen V. Kneese. "Economic and Ecological Effects of A Stationary Economy". Annual Review of Ecology and Systematics, Vol. 2; 1971.	-	-	-	1	-	-	-	2	No	No
22-005	Ayres, Robert U. and Ivar Gutmanis. "Technological Change, Pollution and Treatment Cost Coefficients in Input-Output Analysis". Population, Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	-	-	-	-	-	-	-	1	15 07	Yes
22-006	Ayres, R. U. and M. Lucius Walker. An Aggregated Impact Model for Environmental Pollutants. Washington, D.C.: International Research and Technology Corp.; 1970.	-	-	-	3	-	-	-	3	No	Yes
22-007	Barton-Aschman Associates, Inc. The Barrington, Illinois Area: Evaluation of Growth and Governmental Alternatives. Prepared for the Barrington Area Development Council. Chicago: Barton-Aschman Associates; 1970.	-	2	-	-	-	2	2	2	06	Yes
22-008	Business Week. "Ruckelshaus: 'The Public Must Start Paying'". Business Week (February 24, 1973), p. 62.	-	-	-	-	-	1	-	-	No	No
22-009	Caminos, Horacio, J. F. C. Turner, and J. A. Steffian. Urban Dwelling Environments. Cambridge, Massachusetts: M.I.T. Press; 1969.	1	-	-	-	-	1	-	-	No	No
22-010	Chanasyk, Victor. The Haldimand-Norfolk Environmental Appraisal. Volume I. Toronto: Ontario Ministry of Treasury, Economics and Intergovernmental Relations; 1970.	2	-	-	-	-	3	2	2	15 17	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
22-011	Colorado Environmental Commission. Colorado: Options for the Future. Denver: Colorado Environmental Commission; 1972.	-	-	-	-	1	-	-	-	No	No
22-012	Commission on Population Growth and the American Future. Population and The American Future. Washington, D. C.: U. S. GPO; 1972.	-	-	-	-	-	1	-	1	06	No
22-013	Commoner, Barry. "The Environmental Cost of Economic Growth". Population, Resources, and the Environment, Volume 3. Washington, D. C.: U. S. Commission on Population Growth and the American Future, U. S. GPO; 1972.	-	-	-	-	-	1	-	1	No	No
22-014	Coughlin, Robert E. and James Fritz. Land Values and Environmental Characteristics in the Rural-Urban Fringe. Philadelphia: Regional Science Research Institute Discussion Paper No. 45, Regional Science Research Institute; 1971.	-	-	-	-	-	1	-	-	No	No
22-015	Council on Environmental Quality. Environmental Quality. Third Annual Report. Washington, D. C.: U. S. GPO; 1972.	-	-	-	1	-	1	-	-	17 15	No
22-016	Cowan, Peter (ed.) Developing Patterns of Urbanization. Beverly Hills, California: Sage Publications; 1970.	-	-	-	1	-	1	-	1	02 13	No
22-017	Eash, Ronald W. "Summary of the CATS' Work with the Center for Environmental Studies at Argonne National Laboratory". CATS Research News (February 1973), pp. 1-6.	2	-	-	-	-	1	-	-	No	No
22-018	Elmer, Frank L. and Duncan B. Sutherland Jr. "Urban Design and Environmental Structuring". Journal of the American Institute of Planners, vol. 37:1 (January 1971), pp. 38-42.	-	-	-	-	-	1	-	-	No	No
22-019	Council on Environmental Quality. Environmental Quality. Second Annual Report. Washington, D. C.: U. S. GPO; 1971.	1	1	-	-	-	2	-	2	17 07	No
22-020	Gardner, James S. ETL-CR-72-I: A Study of Environmental Monitoring and Information Systems. Iowa City, Iowa: Institute of Urban and Regional Research; 1972.	-	-	-	1	-	-	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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22-022	Harvard University, Graduate School of Design, Landscape Architecture Research Office. The Interaction Between Urbanization and Land: Quality and Quantity in Environmental Planning and Design. Progress Report, First Year. Washington, D.C.: National Science Foundation, Research Applied to National Needs (RANN) Program; January 1973.	3	-	-	1	-	-	-	-	No	No
22-023	Herfindahl, Orris C. Natural Resource Information for Economic Development. Baltimore, Maryland: The Johns Hopkins Press; 1969.	-	-	-	1	-	-	-	-	No	No
22-024	Herfindahl, Orris C. and Allen V. Kneese. Quality of the Environment. Baltimore, Maryland: Resources for the Future, Inc.; 1965.	-	-	-	-	-	2	-	-	15 17	Yes
22-025	Hills, Stuart L. "The Planned Suburban Community". Land Economics, vol. 45:2 (May 1969), pp. 277-281.	-	2	-	-	-	1	-	-	No	No
22-026	Hirsch, Werner Z. and Percival Goodman. "Is there an Optimum Size for a City" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 398-406.	-	-	-	-	-	1	-	-	No	No
22-027	Hoch, Irving. "Urban Scale and Environmental Quality". Population Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future. U.S. GPO; 1972.	2	2	2	-	-	3	-	3	17 07	Yes
22-028	Hufschmidt, Maynard M. "Environmental Quality as a Policy and Planning Objective". Journal of the American Institute of Planners, vol. 32:4 (July 1971), pp. 231-243.	-	-	-	-	-	1	-	-	No	No
22-029	Institute for Urban Studies. University of Pennsylvania. Accelerated Growth in a Metropolitan Fringe Area. Philadelphia, Pennsylvania: University of Pennsylvania; 1954 (2 volumes).	-	2	-	-	-	2	2	2	01 12	No
22-030	Isard, Walter et al. Ecologic-Economic Analysis for Regional Development. New York, New York: The Free Press; 1972.	-	-	-	3	3	-	1	-	No	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
22-031	Jarret, Henry, ed. Environmental Quality in a Growing Economy. Baltimore: The Johns Hopkins Press; 1966.	-	-	-	-	-	1	-	-	No	No
22-032	Jordan, Paul. The Impact of Growth on the Environment of San Jose. Santa Monica, California: The Rand Corporation; February 1973.	-	2	-	-	-	1	-	-	17 15	Yes
22-033	Joskow, Jules. "Cost-Benefit Analysis for Environmental Impact Statements". Public Utilities Fortnightly (January 18, 1973), pp. 21-25.	-	-	-	-	-	1	-	-	No	No
22-034	Kaiser, Edward J. et. al. Promoting Environmental Quality Through Urban Planning and Controls. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; (forthcoming).	2	2	-	-	-	2	-	1	No	Yes
22-035	Kamrany, Nake M. "Economic Growth and Environmental Impact: Evaluating Alternatives". Socio-economic Planning Science, vol. 7 (1973), pp. 37-53.	-	-	-	-	-	1	-	-	No	No
22-036	Klingbiel, A. A. "Costs and Returns of Soil Surveys". Agricultural Banking and Finance (November/December 1966), pp. 44-47.	-	-	-	-	-	1	-	-	No	No
22-037	Kneese, Allen V. and Blair T. Bower. Environmental Quality Analysis. Baltimore: The Johns Hopkins Press; 1972.	-	-	-	2	-	2	-	-	17 15	No
22-038	Knopf, Alfred A. Cities. New York: Scientific American, Inc.; 1965.	-	-	-	-	-	1	-	-	No	No
22-039	Kreith, Frank. "Lack of Impact". Environment Magazine, vol. 15:1 (January 1973), pp. 26-33.	-	-	-	-	-	2	-	-	No	Yes
22-040	Krendel, Ezra S. "Social Indicators and Urban Systems Dynamics". Socio-Economic Planning Sciences, vol. 5:4 (August 1971), pp. 387-393.	-	-	-	1	-	-	-	-	No	No
22-041	Laurent, E.A. and J.C. Hite. "Economic-Ecologic Linkages and Regional Growth: A Case Study". Land Economics (February 1972), pp. 70-72.	3	-	-	1	-	-	-	-	No	No
22-042	Leopold, Luna B. et. al. A Procedure for Evaluating Environmental Impact. Washington, D.C.: U.S. Geological Survey; 1971.	-	-	-	2	-	-	-	-	No	Yes

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22-043	Livingston and Blayney, City and Regional Planners. Santa Rosa Optimum Growth Study. Santa Rosa, California: Santa Rosa Planning Department; January 1973.	-	2	-	-	-	2	2	2	19 01	Yes
22-044	Mayer, Albert. "Greenbelt Towns Revisited". The Journal of Housing, vol. 24:1 (January 1967), pp. 12-26.	-	3	-	-	-	1	1	-	No	No
22-045	McEvoy, James III and Sharon Williams. Visual Pollution in the Lake Tahoe Basin. Davis, California: Tahoe Research Group; (undated).	-	2	-	-	3	-	1	-	No	No
22-046	McHarg, Ian L. Design with Nature. Garden City, New York: Doubleday and Co.; 1969.	3	-	-	-	3	3	3	1	23	Yes
22-047	McKee, David L. and Gerald H. Smith. "Environmental Diseconomies in Suburban Expansion". American Journal of Economics & Sociology (April 1972), pp. 181-188.	-	-	-	-	-	1	-	-	No	No
22-048	Miami Valley Regional Planning Commission. Natural Resources of the Miami Valley Region. Dayton: Miami Valley Regional Planning Commission; 1967.	-	-	-	-	-	1	-	-	15 17	No
22-049	Michelson, William. "An Empirical Analysis of Urban Environmental Preferences". Journal of the American Institute of Planners, vol. 32:6 (November 1966), pp. 355-360).	-	1	-	-	-	1	-	3	23	No
22-050	Montgomery, Hugh B. "Environmental Analysis in Local Development Planning". Appalachia, vol. 3:3 (November/December 1969), pp. 1-11.	-	-	-	-	2	-	-	-	No	No
22-051	Moore, Gary T. Emerging Methods in Environmental Design Proceedings. Cambridge, Massachusetts: The Design Methods First International Conference, MIT; June 1968.	-	-	-	-	1	-	-	-	No	No
22-052	Noone, James A. "Environment Report/Land Use and Solid Waste Are Seen as Chief Legislative Priorities". National Journal (February 10, 1973), pp. 189-198.	-	-	-	-	-	1	-	-	07	No
22-053	Orange County Planning Department. Orange County Population Growth Policy and Development Strategy Study: Phase II Report. Santa Ana, California: Orange County Planning Department; 1972.	2	-	-	-	-	2	2	-	13 02	Yes

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22-055	Regional Planning Council. Environmental Characteristics Planning: Preparation of a Plan. Baltimore: Regional Planning Council; July 1972.	1	-	-	-	2	2	-	-	No	No
22-056	Ridker, Ronald G. "Resource and Environmental Consequencies of Population Growth in the United States: A Summary". Population, Resources, and the Environment, Volume 3, Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.	2	-	-	-	-	1	-	-	No	No
22-058	Runnels & Roessler. Kansas City International Airport and Vicinity Development Plan. Kansas City, Missouri: Runnels & Roessler, Environmental Associates; 1970.	-	3	-	-	-	-	3	3	01 04	Yes
22-059	Schmandt, Henry J. & Warner Bloomberg, Jr. (ed.). The Quality of Urban Life. Beverly Hills, California: Sage Publications, Inc.; 1969.	1	1	-	-	-	1	-	-	No	No
22-060	Stalley, Marshall. "Environmental Planning and the Defunct HRVC". Landscape Architecture (July 1972), pp. 327-330.	1	-	-	-	-	1	-	-	No	No
22-061	Stipes, Robert E. (ed.). Perception and Environment: Foundations of Urban Design, Proceedings of 1962 Seminar on Urban Design. Chapel Hill, North Carolina: Institute of Government, University of North Carolina; 1966.	-	1	-	-	-	1	-	-	No	No
22-062	Stover, Dr. Lloyd V. Environmental Impact Assessment: A Procedure. Miami, Florida: Sanders and Thomas, Inc.; May 1972.	-	-	-	-	1	1	-	-	No	No
22-063	Tourbier, Joachim. "The Christina Project: Environmental Protection in Urban Growth Areas". Urban Land (September 1972), pp. 14-21.	-	-	-	-	1	-	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
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22-066	U.S. Department of Agriculture and Housing and Urban Development. Soil, Water, and Suburbia: Report of the Proceedings of the Conference. Washington, D.C.: U.S. GPO; 1968.	1	-	-	-	1	-	-	-	No	No
22-067	U.S. Department of Commerce, Bureau of the Census. Environmental Quality Control; Expenditure and Employment for Selected Large Governmental Units: Fiscal 1969-1970. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census; 1972.	3	-	-	-	-	-	-	2	15 07	No
22-068	U.S. Environmental Protection Agency. Land Use and The Environment. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; 1970.	-	-	-	-	-	2	-	-	17 16	Yes
22-069	U.S. Environmental Protection Agency. Quality of Life Indicators. Washington, D.C.: U.S. Environmental Protection Agency; 1972.	-	-	-	2	-	-	-	-	No	No
22-070	U.S. Environmental Protection Agency, Office of Research and Monitoring. Strategic Environmental Assessment System. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; February 1973.	1	1	-	-	2	-	-	-	No	Yes
22-071	U.S. Library of Congress. The Economy, Energy, and the Environment; A Background Study prepared for the use of the Joint Economic Committee Congress of the United States; Washington; 1970.	-	-	-	-	-	2	-	2	No	No
22-072	Urban Land Institute. Environment & the Land Developer. Washington: Urban Land Institute; 1971.	-	-	-	-	-	1	-	-	No	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
22-073	Veri, Albert. Density As An Environmental Issue. Coral Gables, Florida: The Center for Urban Studies, Division of Applied Ecology; April 22, 1971.	1	1	1	-	-	2	-	1	No	No
22-074	Veri, Albert. The Proposed Three Islands Development-Hallandale and Hollywood, Florida. Coral Gables, Florida: The Center for Urban Studies, University of Miami; February 1, 1972.	-	2	-	-	-	2	-	-	No	Yes
22-075	California Council of Civil Engineers and Land Surveyors. Environmental Impact Analysis. Sacramento, California: California Council of Civil Engineers and Land Surveyors; 1972.	-	-	-	-	3	-	-	-	No	Yes
22-076	Nicholas Quennell Landscape and Environmental Planning. Rancho San Diego: Landscape and Environmental Considerations, Volumes I and II. New York, New York: Nicholas Quennell; December 1972.	-	3	-	-	-	2	3	3	No	Yes
22-077	Medford Township, New Jersey. Draft Ecological Planning Study and Zoning Ordinance Modifications. Unpublished; 1973.	3	-	-	-	3	3	3	-	No	Yes
22-078	Belknap, Raymond K. and John G. Furtado. Three Approaches To Environmental Resource Analysis. Cambridge, Massachusetts: Graduate School of Design, Harvard University; 1967.	3	-	-	2	3	3	2	-	No	Yes
22-079	Jacobs, Peter and Douglas Way. Visual Analysis of Landscape Development. Cambridge, Massachusetts: Graduate School of Design, Harvard University; 1968.	2	3	2	2	3	3	3	3	No	Yes
22-080	Kormondy, Edward J. Concepts of Ecology. Englewood Cliffs, New Jersey: Prentice-Hall; 1969.	-	-	-	3	-	2	2	2	No	Yes
22-081	Rockefeller Brothers Fund. The Use of Land: A Citizen's Policy Guide To Urban Growth. New York, New York: Thomas Y. Crowell Company; 1973.	2	3	2	-	-	3	-	-	No	Yes

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Reference Number	CODE 22: ENVIRONMENTAL IMPACT (continued) Classification: Secondary	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
02-037	Richard Raymond Association. Study of Recreation Potentialities and Economic Impact-San Mateo County Coastside. Richard Raymond Association; June 1967.	-	2	-	-	1	2	2	2	02	No
13-024	Burco, Robert A., and David A. Curry. Future Urban Transportation Systems: Impacts on Urban Life and Form. Menlo Park: Stanford Research Institute; 1968.	1	-	-	-	-	2	-	1	13	No
13-027	Garrison, William L. et. al. Studies of Highway Development and Geographic Change. Seattle: The University of Washington Press; 1959.	-	-	-	1	-	-	-	1	13	No
13-071	Teska, Robert B. "Social, Economic and Environmental Impacts of a System of High-Accessibility Corridors". Highway Research Record No. 356. Washington, D. C.: Highway Research Board; 1971, pp. 119-129.	3	-	-	-	-	1	-	-	13	No
13-082	Wallace, McHarg, Roberts, and Todd. The Least Social Cost Corridor for Richmond Parkway. New York: City of New York Recreation and Cultural Affairs Administration; 1968.	1	-	-	-	-	1	1	-	13	No
21-145	Weiss, Shirley (ed.) et. al. New Community Development. Vol. I. Chapel Hill, North Carolina: University of North Carolina New Towns Research Seminar; 1971.	-	-	-	2	2	2	-	-	21	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-106	San Francisco Planning and Urban Renewal Association. Impact of Intensive High Rise Development in San Francisco: Step One-Part A, Initial Feasibility Test. San Francisco, California: SPUR; 1972.	3	-	-	-	3	-	3	2	01 08	Yes
01-108	Saroff, Jerome R. and Alverta Z. Levitan. Survey Manual for Comprehensive Planning. Anchorage, Alaska: Development Research Associates, Inc.; 1969.	-	2	-	2	2	2	2	-	01 23	No
01-150	San Francisco Planning and Urban Renewal Association. Impact of Intensive High-Rise Development in San Francisco: Step One-Part B, A Final Feasibility Report. San Francisco: SPUR; 1972.	-	3	-	-	2	2	-	2	01 06	Yes
02-039	Southern California Research Council. The New Shape of Southern California 1985. Los Angeles, California: Los Angeles Occidental College; February 1970.	2	-	-	-	-	1	-	-	02 01	No
13-081	Alan M. Voorhees and Associates, Inc. Boston Transportation Planning Review: Summary and Evaluation. Boston, Massachusetts: Alan M. Voorhees and Associates, Inc.; October 1972.	-	2	-	1	-	2	-	2	13 19	Yes
18-005	Southeastern Wisconsin Regional Planning Commission. Soils Development Guide. Waukesha, Wisconsin: Southeastern Wisconsin Regional Planning Commission; August 1969.	3	3	3	-	3	2	3	2	18 11	Yes
21-123	Strong, Ann Louise. Planned Urban Environments: Sweden, Finland, Israel, The Netherlands, France. Baltimore, Maryland: The Johns Hopkins Press; 1971.	2	2	-	-	-	2	2	-	21 06	No

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23-002	Christen, Francois G. Citizen Preference for Home, Neighborhood, and City in Santa Clara County. Santa Monica, California: The Rand Corporation; March 1, 1973.	-	2	-	2	3	2	-	-	01	Yes
23-003	Cullengworth, J. B. "Housing Preferences". Town & Country Planning, vol. 33:5 (May 1965), pp. 215-217.	-	1	-	-	-	1	-	-	01	No
23-004	Diaso, Robert J. et. al. Perception of the Housing Environment: A Comparison of Racial and Density Preferences. Pittsburgh: University of Pittsburgh Graduate School of Public and International Affairs; 1971.	-	1	-	3	-	2	1	-	01	No
23-005	Foote, Nelson N. et. al. Housing Choices and Housing Constraints. New York: McGraw-Hill Book Company, Inc.; 1960.	1	1	1	-	-	2	-	-	01	No
23-006	Highway Research Board. Moving Behavior and Residential Choice. Washington, D. C.: Highway Research Board, National Cooperative Highway Research Program, Report No. 81; 1969.	2	2	2	2	-	2	-	2	01	Yes
23-007	Hille, Stanley J. and Theodore K. Martin. "Consumer Preference in Transportation". Highway Research Record No. 197. Washington, D. C.: Housing Research Board; 1967, pp. 36-44.	2	-	-	-	-	2	2	-	13	Yes
23-008	Hinshaw, Mark and Kathryn Allott. "Environmental Preferences of Future Housing Consumers". Journal of the American Institute of Planners, vol. 38:2 (March 1972), pp. 102-107.	-	2	-	-	-	2	-	2	01	Yes
23-009	Lansing, John B. et. al. Residential Location and Urban Mobility. Ann Arbor: Institute for Social Research, The University of Michigan; 1964.	-	-	-	-	-	2	-	2	01	Yes
23-010	Lansing, John B. and Eva Mueller. "Residential Location and Urban Mobility". Highway Research Record No. 106. Washington, D. C.: Highway Research Board; pp. 77-96.	-	-	-	-	-	2	-	2	01 13	Yes

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23-011	Lansing, John B. and Gary Hendricks. Automobile Ownership and Residential Density. Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan; June 1967.	1	-	-	-	-	1	-	-	13	Yes
23-012	Menchik, Mark D. Residential Environmental Preferences and Choice: Some Preliminary Empirical Results Relevant to Urban Form. Philadelphia: Regional Science Research Institute, Discussion Paper Series No. 46; 1971.	-	2	-	-	-	2	2	3	01	Yes
23-013	Moore, C. T. and J. B. Mason. "A Test of the Concept of a Household Shopping-Travel-Behavior Corridor". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 102-108.	-	1	-	-	-	1	-	-	08	No
23-014	Murray, Timothy. "Community Preferences and Open Space Planning". Landscape Architecture (January 1970), pp. 108-110.	-	1	-	-	-	1	-	-	02 01	No
23-015	Sherman, Roger. "A Private Ownership Bias in Transit Choice" in Edel and Rothenberg (eds.) Readings in Urban Economics. New York, New York: Macmillan Co.; 1972, pp. 480-485.	1	1	-	-	-	1	-	-	13	No
23-016	Urban Land Institute. "The Tenants' Point of View". Urban Land, vol. 29:2 (February 1970), pp. 3-8.	2	-	3	1	2	2	-	-	01	Yes
23-017	U. S. Department of Commerce. Qualitative Aspects of Urban Personal Travel Demand. Washington, D. C.: U. S. Department of Commerce (NTIS); August 1968.	-	-	-	-	-	1	-	-	13	No
23-018	Weiss, Shirley et. al. Residential Developer Decisions: A Focused View of the Urban Growth Process. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; 1966.	-	2	-	2	-	2	-	1	01	Yes
23-019	Werthman, Carl, Jerry Mandel, and Ted Dienstfrey. Planning and the Purchase Decision: A Study of Why People Buy in Planned Communities. Prepared for the Community Development Project; 1965.	-	3	-	-	-	3	2	2	21 01	Yes

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23-020	Wilmott, Peter. "Housing in Cumbernould: Some Residents Opinions". Journal of the Town Planning Institute; May 1964.	-	2	-	-	-	1	-	-	01	No
23-021	Zehner, Robert B. "Neighborhood and Community Satisfaction in New Towns and Less Planned Suburbs". Journal of the American Institute of Planners, vol. 37:6 (November 1971), pp. 379-387.	-	2	-	-	-	2	-	-	21	Yes
23-022	Institute for Environmental Studies. Case Studies of Six Planned New Towns. Lexington, Kentucky: Institute for Environmental Studies, University of Kentucky; March 1973.	-	2	-	-	-	2	3	3	21	Yes
23-023	Norcross, Carl. Townhouses and Condominiums: A Survey of Residents' Likes and Dislikes. Washington, D.C.: Urban Land Institute; 1973.	-	-	3	-	-	3	2	2	01	Yes
23-024	Real Estate Research Corporation. Market Analysis, Cluster Housing, Houston, Texas. Houston: RERC; 1972.	-	2	-	-	-	2	2	2	01	Yes
23-025	Thibeault, Russell W. et. al. "Accessibility, Satisfaction, Income and Residential Mobility". Traffic Quarterly (April 1973), pp. 289-307.	-	1	1	-	-	2	-	-	01	No
23-026	Weiss, Shirley F. Consumer Preferences in Residential Location: A Preliminary Investigation of the Home Purchase Decision. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; 1966.	-	-	1	-	-	2	-	1	01	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-012	Arminger, Louis Earl Jr., Toward a Model of the Residential Location Decision Process: A Study of Recent and Prospective Buyers of New and Used Homes (master's thesis). Chapel Hill, North Carolina: University of North Carolina; 1966.	1	1	1	2	-	2	-	-	01	Yes
01-031	Donaldson, Scott. The Suburban Myth. New York, New York: The Columbia University Press; 1969.	-	1	-	-	-	1	-	-	01	No
01-057	Kain, John F. and John M. Quigley. Measuring the Quality and Cost of Housing Services. Cambridge, Massachusetts: Harvard University, Program on Regional and Urban Economics, Discussion Paper No. 54; 1969.	-	-	-	-	-	1	-	-	01	No
01-058	Kaiser, Edward John. Toward a Model of Residential Developer Locational Behavior. Chapel Hill, North Carolina: Center for Urban and Regional Studies; 1966.	-	1	-	1	-	1	-	-	01	No
01-073	Martin, Walter T. The Rural-Urban Fringe: A Study of Adjustment to Residence Location. Eugene, Oregon: University of Oregon Press; 1955.	-	-	-	2	2	-	-	-	01	No
01-092	Peterson, George L. "A Model of Preference: Qualitative Analysis of the Perception of the Visual Appearance of Residential Neighborhoods". Journal of Regional Science, vol. 7 (1967), pp. 19-32.	-	1	-	2	-	2	-	-	01	No
01-102	Rossi, Peter. Why Families Move. Glencoe, Illinois: The Free Press; 1955.	3	3	3	-	-	2	-	-	01	No
01-108	Saroff, Jerome R. and Alverta Z. Levitan. Survey Manual for Comprehensive Planning. Anchorage, Alaska: Development Research Associates, Inc.; 1969.	-	2	-	2	2	2	2	-	01 22	No
01-117	Stegman, Michael A. "Accessibility Models and Residential Location". Journal of the American Institute of Planners. Vol. 35:1 (January 1969), pp. 22-29.	3	-	-	3	-	3	-	-	01	Yes
01-118	Stegman, Michael A. Housing and Economics - The American Dilemma. Cambridge, Massachusetts: Massachusetts Institute of Technology; 1970.	-	1	-	1	-	2	-	2	01	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-123	Stollenwerk, Donald A. Cost Factors in the Choice of Subdivision Locations by Residential Developers. Chapel Hill, North Carolina: University of North Carolina Department of City and Regional Planning (thesis); 1964.	-	2	-	2	-	2	-	-	01 10	Yes
01-135	Urban Land Institute. Apartment Communities: The Next Big Market. Washington, D.C.: ULI Technical Bulletin No. 61; 1968.	-	-	3	-	-	2	-	-	01	Yes
01-144	Wheaton, William et. al. (eds.) Urban Housing. New York, New York: The Free Press; 1966.	1	1	-	-	-	1	-	-	01	No
01-148	Kenney, Kenneth B. The Residential Land Developer and His Land Purchase Decision. Chapel Hill, North Carolina: The University of North Carolina; 1972.	-	-	-	2	2	2	-	-	01	Yes
02-008	Committee for the Study of Municipal Costs. Green Areas in Andover: Gain or Loss? Andover, Massachusetts: Committee for the Study of Municipal Costs; 1963.	-	-	-	-	-	1	-	-	02	No
02-024	Louis Berger, Inc. Methodology to Evaluate Socio-economic Benefits of Urban Water Resources. East Orange, New Jersey: Louis Berger, Inc.; 1971.	-	-	-	-	2	-	-	1	02	No
06-009	Burch, W. R. "The Nature of Community and a Case Analysis of Failure" in John Forster's (ed.) Social Process in New Zealand. Auchland: Longman Paul Ltd., 1969.	-	3	2	-	-	2	-	-	06	No
08-008	Gruen, Nina J. and Claude Gruen. "A Behavioral Approach to Determining Optimum Location for the Retail Firm". Land Economics, vol. 43:3 (August 1967), pp. 320-327.	-	1	-	-	1	-	-	-	08	No

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
12-003	Bestor, George C. Buried Cables. A Survey of Buried Electric Distribution for Residential Land Development. Washington, D. C.: Urban Land Institute Technical Bulletin No. 48; 1964.	-	-	1	-	-	-	-	2	12	Yes
13-017	Bendix Corp. Columbia Transit Program: Phase 1 Final Report Concept Formulation. Ann Arbor: Bendix Corp.; 1970.	3	3	3	-	-	-	3	3	13	Yes
13-057	Norton, Thomas J. "Decision-Making Techniques for Identifying Aesthetically Superior Highway Environments". Highway Research Record No. 182. Washington, D. C.: Highway Research Board; pp. 5-8.	-	-	-	1	-	-	-	-	13	No
13-058	Owen, Wilfred. The Accessible City. Washington: The Brookings Institution; 1972.	2	2	2	-	-	2	-	1	13	No
13-072	Tri-State Transportation Commission. Transit Supporting Densities - Interim Technical Report No. 4195-4451. New York, New York: Tri-State Transportation Commission; July 1970.	-	1	-	-	-	-	-	1	13	Yes
13-074	U. S. Department of Transportation. The Freeway in the City: Principles of Planning and Design. Washington, D. C.: U. S. GPO; 1968.	3	1	1	3	2	-	-	1	13	No
16-003	Bragdon, Clifford R. Noise Pollution. Philadelphia, Pennsylvania: University of Pennsylvania Press; 1971.	3	-	-	-	-	3	3	3	16	Yes
16-012	U. S. Department of Housing and Urban Development. Noise Assessment Guidelines - Technical Background. Washington, D. C.: Department of Housing and Urban Development; 1972.	2	-	-	-	-	2	-	3	16	Yes
16-014	U. S. Environmental Protection Agency. The Economic Impact of Noise. Washington, D. C.: U. S. Environmental Protection Agency (PB-206726) (December 31, 1971).	2	2	-	-	-	3	-	2	16	Yes
16-016	U. S. Environmental Protection Agency. Report to the President and Congress on Noise. Washington, D. C.: U. S. GPO; February 1972.	2	2	2	-	-	3	1	3	16	Yes

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		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
19-008	Smolensky, Eugene; T. Nicholas Tideman; and Donald Nichols. "Waiting Time as a Congestion Charge" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 95-104.	-	-	-	1	-	2	-	-	19	No
19-012	Watson, Peter L. "Problems Associated with Time and Cost Data Used in Travel Choice Modeling and Valuation of Time". Highway Research Record 369. Washington, D.C.: Highway Research Board; 1971, pp. 148-158.	-	-	-	2	-	2	-	-	19	Yes
21-024	Chapin, F. Stuart, Jr. and Shirley F. Weiss (eds.) Urban Growth Dynamics in a Regional Cluster of Cities. New York, New York: John Wiley and Sons, Inc.; 1962.	-	1	-	-	1	2	-	1	21	Yes
21-080	Llewelyn-Davies Associates. A New Community in Amherst. Volume 2. New York, New York: New York State Urban Development Corporation; 1971.	3	-	-	3	3	-	-	3	21	Yes
22-046	McHarg, Ian L. Design With Nature. Garden City, New York: Doubleday and Co.; 1969.	3	-	-	-	3	3	3	1	22	Yes
22-049	Michelson, William. "An Empirical Analysis of Urban Environmental Preferences". Journal of the American Institute of Planners, vol. 32:6 (November 1966), pp. 355-360.	-	1	-	-	-	1	-	3	22	No

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Classification: Tertiary

Reference Number		Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
01-030	Dobriner, W. (ed.) The Suburban Community. New York, New York: G. P. Putnam; 1958.	-	2	-	-	-	1	2	-	01 02	No
01-079	Mid-Willamette Valley Council of Governments. The Costs of Urban Growth for the Salem, Oregon Area. Salem, Oregon: Mid-Willamette Valley Council of Governments, Urban Growth Policies No. 4; July 1972.	3	-	-	-	-	2	2	1	01 06	No
01-097	Putnam, Robert. "Site Planning and Social Behavior". Journal of Social Issues, vol. 22:4 (1966), pp. 103-115.	-	1	2	-	1	2	-	-	01 02	No
01-112	Smith, Wallace F. Housing: The Social and Economic Elements. Berkeley, California: The University of California Press; 1970.	-	2	-	1	-	1	-	-	01 06	No
02-016	Kaiser, Edward J. "Natural Landscape and Housing Location Decisions". Landscape Architecture (January 1970), pp. 105-108.	-	-	-	-	-	1	-	-	02 01	No
09-017	Sternlieb, George. "Evaluation of Municipal Services" in Housing Development and Municipal Costs. Section III. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University; Spring 1973.	-	3	-	-	-	3	-	3	09 05	Yes
13-049	Lave, Lester B. Transportation, City Size, and Congestion Tolls. Santa Monica, California: The Rand Corporation; April 1969.	3	-	-	3	-	1	-	-	13 19	No
19-011	Alan M. Voorhees and Associates, Inc. Reston Transportation Study. McLean, Virginia: Alan M. Voorhees and Associates, Inc.; 1970.	-	3	2	-	2	3	3	3	19 13	Yes

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Reference Number	CODE 23: PREFERENCE (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
21-084	MacCormae, Richard and Peter Willmott. "A Radburn Estate Revisited". The Architect's Journal; March 25, 1964.	-	2	2	-	-	2	2	-	21 01	No
21-085	Marans, R. W. "Social and Cultural Influences on New Town Planning". Journal of the Town Planning Institute, vol. 36:2 (February 1970).	-	-	1	-	-	2	-	-	21 01	No

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24-001	American Institute of Architects. Selected References on Planned Communities. Washington, D. C.: American Institute of Architects; 1968.										
24-002	Bicker, William, et. al. Comparative Urban Development: An Annotated Bibliography. Washington, D. C.: American Society for Public Administration; 1965.										
24-003	Branch, Melville C. Comprehensive Urban Planning: A Selected Annotated Bibliography with Related Materials. Beverly Hills, California: Sage Publications; 1970.										
24-004	Branch, M. C. Selected Bibliography on New Town Planning and Development. Los Angeles: University of Southern California, Graduate Program of Urban and Regional Planning; 1972.										
24-005	Carter, Everett C., Lonnie E. Haefner, and Jerome W. Hall. Literature References on Techniques for the Evaluation of Factors Relevant to Decision Making for Highways. Prepared for the Federal Highway Administration, Department of Transportation; 1972.										
24-006	Clapp, James A. The New Town Concept: Private Trends and Public Response. Monticello, Illinois: Council of Planning Libraries Bibliography No. 122; 1970.										
24-007	Davidson, Claud M. Rural and Suburban Towns: Spatial Characteristics of Change in Population and Functional Structure. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 272; 1972.										
24-008	Dean, Robert D. Urbanization, Industrialization, and the Development Process. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 178; 1971.										
24-009	Decision Sciences Corporation. Annotated Bibliography on New Community Planning. Jenkintown, Pennsylvania: Decision Sciences Corporation; 1971.										
24-010	Ehler, Charles N. Environmental Systems Planning and Management: A Preliminary Sorting of Literature. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 251; 1972.										

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24-012	Gliege, John G. Planned Communities: An Annotated Bibliography. Arizona State University, Institute of Public Administration; 1970.										
24-013	Golany, Dr. Gideon. New Towns Planning and Development: A World-Wide Bibliography. Washington, D. C.: Urban Land Institute, Research Report No. 20; 1973.										
24-014	Grant, Donald P. Systematic Methods in Environmental Design. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 302; 1972.										
24-015	Haefner, Lonnie E. A Bibliography of Urban and Regional Systems Analysis Models. Warren, Michigan: General Motors Corporation Research Laboratories; 1972.										
24-016	Harrison, Fernande P. Planning Health Care Facilities: A Bibliography. Monticello, Illinois: Council of Planning Libraries Bibliography No. 369; February 1973.										
24-017	Hinote, Rubert. Benefit-Cost Analysis for Water Resource Projects: A Selected Annotated Bibliography. Knoxville, Tennessee: Center for Business and Economic Research, University of Tennessee; June 1969.										
24-018	Howard, William A. and James B. Kracht. Optimum City Size and Municipal Efficiency. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 169 (A revised version of No. 52); 1971.										
24-019	Isika, Daniel. Urban Growth Policy in the United States. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 273; 1972.										
24-020	Kerr, J. Douglas. New Towns: A Selected Bibliography. Harrisburg, Pennsylvania: Pennsylvania State Library, Pennsylvania Department of Education; 1970.										

GENERAL BIBLIOGRAPHY

Reference Number	CODE 24: BIBLIOGRAPHY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
24-021	Kokus, John, Jr. An Annotated Bibliography of Selected Readings for the Program in Real Estate and Urban Development Planning. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 156; 1970.										
24-022	Kracht, James B. The Application of Models to the Planning Process with Special Emphasis on Land Use. Monticello, Illinois: Council of Planning Libraries Bibliography No. 194; June 1971.										
24-023	Mace, Ruth L. Costing Urban Development and Redevelopment: Selected Readings on Costs, Revenues, Cost-Benefit and Cost-Revenue Analysis in Relation to Land Use. Chapel Hill, North Carolina: University of North Carolina, Institute of Government; June 1964.										
24-024	Masotti, Louis H., and Jeffrey K. Hadden. Suburbs, Suburbia, and Suburbanization. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 269; 1972.										
24-025	Meshenberg, Michael J. Environmental Planning: A Selected Annotated Bibliography. Chicago: American Society of Planning Officials Planning Advisory Service Report No. 264; 1970.										
24-026	Meyers, Charles R. Regional Modeling Abstracts - A Bibliography of Regional Analysis, Vol. IV. Oak Ridge, Tennessee: Oak Ridge National Laboratory; March 1973.										
24-027	Mignon, Molly R. Our Polluted Planet: A Bibliography of Government Publications on Pollution and the Environment. Olympia, Washington: Western Washington State College; 1970.										
24-028	Mitchell, Bruce and Joan Mitchell. Benefit-Cost Analysis: A Select Bibliography. Monticello, Illinois: Council of Planning Libraries Bibliography No. 267; March 1972.										
24-029	National Association of Home Builders. Environmental Design: A Selected Annotated Bibliography. Washington, D.C.: National Housing Center Council Bibliography No. 6; July 1966.										

GENERAL BIBLIOGRAPHY

Reference Number	CODE 24: BIBLIOGRAPHY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
24-030	Peng, George T. C., and Nakul S. Verma. New Town Planning Design and Development: Comprehensive Reference Materials. Lincoln, Nebraska; University of Nebraska; 1971.										
24-031	Porch, Harriett. Economics Department Publications 1963-1969: An Author Index of the Open Literature. Santa Monica, California: Rand Corporation; June 1969.										
24-032	Powell, David R., and Nan C. Burg. New Towns Bibliography. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 249; 1972.										
24-033	The Rand Corporation. A Bibliography of Selected Rand Publications: Pollution. Santa Monica, California: The Rand Corporation; November 1972.										
24-034	The Rand Corporation. A Bibliography of Selected Rand Publications: Transportation. Santa Monica, California: The Rand Corporation; November 1972.										
24-035	The Rand Corporation. A Bibliography of Selected Rand Publications: Urban Problems. Santa Monica, California: The Rand Corporation; November 1972.										
24-036	Ray, William W. The Rural-Urban Fringe. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 133; 1970.										
24-037	Stanley, T. Brock. Community Facilities Planning. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 188; 1971.										
24-038	Tribble, Paul and James Bohland. Urban Sprawl: Form and Process. Monticello, Illinois: Council of Planning Libraries Bibliography No. 368; February 1973.										
24-039	U. S. Department of Housing and Urban Development. Environment and the Community. Washington, D. C.: U. S. Department of HUD; April 1971.										
24-040	U. S. Department of Health, Education and Welfare, Health Services and Mental Health Administration. Publications of Health Care Facilities Service: Hill-Burton Program. Washington, D. C.: U. S. GPO; 1972.										

GENERAL BIBLIOGRAPHY

Reference Number	CODE 24: BIBLIOGRAPHY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
24-041	U.S. Department of Health, Education and Welfare, Health Services and Mental Health Administration. Publications of the Health Services and Mental Health Administration. Washington, D.C.: U.S. Department of Health, Education and Welfare; July 1972.										
24-042	U.S. Department of Housing and Urban Development. New Communities: A Bibliography. Washington, D.C.: U.S. GPO; 1970.										
24-043	U.S. Department of Interior, Office of Water Resources Research. Bibliography on Socio-Economic Aspects of Water Resources. Washington, D.C.: U.S. Department of the Interior, Office of Water Resources Research; 1966.										
24-044	U.S. Department of Interior and U.S. Department of Housing and Urban Development. San Francisco Bay Region Environment and Resources Planning Study: Publications Available to Date. San Francisco, California: U.S. Geological Survey; February 1973.										
24-045	U.S. Environmental Protection Agency. Air Pollution Technical Information Center. APTIC Search: Effects-Economic. Research Triangle Park, North Carolina: Air Pollution Technical Information Center; February 1973.										
24-046	U.S. Environmental Protection Agency. Air Pollution Technical Information Center. APTIC Search: Land Use. Research Triangle Park, North Carolina: Air Pollution Technical Information Center; February 1973.										
24-047	U.S. Environmental Protection Agency. Air Pollution Technical Publications of the U.S. Environmental Protection Agency. Research Triangle, North Carolina: Air Pollution Technical Information Center; January 1973.										
24-048	U.S. Environmental Protection Agency. Solid Waste Management: Available Information Materials. Washington, D.C.: U.S. GPO; 1973.										
24-049	U.S. Housing and Home Finance Agency. New Communities: A Selected Annotated Reading List. Washington, D.C.: U.S. GPO; 1965.										

GENERAL BIBLIOGRAPHY

Reference Number	CODE 24: BIBLIOGRAPHY (continued)	Geographical Orientation			Functional Orientation					Cross-Reference	
		Metropolitan	Community	Neighborhood	Theoretical	Method or Technique	Analysis	Case Study	Data Source	General Bibliography	Annotated Bibliography
24-050	University of California, Berkeley. Institute of Urban and Regional Development. Publications in Print. Berkeley, California: University of California, Berkeley; January 1973.										
24-051	University of Southern California. Graduate Program of Urban and Regional Planning. Bibliography of Theses and Written Directed Research. Los Angeles, California: University of Southern California; August 1972.										
24-052	Water Resources Center. The Literary Search for the Christina Basin Project. Newark, Delaware: Water Resources Center, University of Delaware; April 1972.										
24-053	Zeitlin, Morris. Guide to the Literature of Cities - Part II: Urban Land Use. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 306; 1972.										
24-054	Zeitlin, Morris. Guide to the Literature of Cities - Part VIII. The Metropolitan Region. Monticello, Illinois: Council of Planning Librarians Exchange Bibliography No. 312; 1972.										

SECTION III: ANNOTATED BIBLIOGRAPHY

Explanatory Notes

The annotated bibliography is organized in a manner parallel to the general bibliography. Sources are listed according to primary classifications and are presented in sections in the same order as in the general bibliography. The same unique reference numbers are used for sources throughout all sections of this report.

Not all sources are annotated, but rather reflect those sources culled from the general bibliography according to two criteria: (1) interests to a local government official confronted with decisions regarding the economic and environmental effects of development, and (2) usefulness for detailed cost analysis of alternative housing types or development patterns. The annotation was written from this perspective.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL
Classification: Primary

01-003 Albert Veri Associates. An Analysis of Density as it Relates to the Future Environmental Quality of Naples and Coastal Collier County, Florida. Coconut Grove, Florida: Albert Veri Associates; November 1, 1972.

Evaluates the effects of various population sizes and densities and relates these as guidelines for testing the study area. Has traffic generation information.

01-005 American Appraisal Company. Boeckh Building Valuation Manual. Milwaukee: Boeckh Division, American Appraisal Company; 1967.

Costs of construction for various housing types, commercial areas, and health facilities; includes standards used in making estimates. Costs updated periodically.

01-006 American Public Health Association, Committee on the Hygiene of Housing. Planning the Neighborhood. Chicago: Public Administration Service; 1960.

Deals with standards for the environment of residential areas - the physical setting in which homes should be located. Attempt is made to consider basic health criteria which should guide planning of residential neighborhood.

01-008 Applied Decision Systems, Inc. Community Impact Model: Final Design. Prepared for the Michigan State Housing Development Authority. Wellesley Hills, Massachusetts: Applied Decision Systems, Inc.; 1973.

Five stage modeling process forecasts revenues and expenditure associated with government financed multi-unit development in communities of 10,000 to 200,000 population vs. privately financed single family units.

01-009 Applied Decision Systems, Inc. The MSHDA Community Impact Model: Demonstration Analysis. Prepared for the Michigan State Housing Development Authority. Wellesley Hills, Massachusetts: Applied Decision Systems, Inc.; 1972.

Illustrates the process which a user of the Community Impact Model followed for an initial analysis of the fiscal impact of the Pebble Creek development on the city of East Lansing, Michigan.

01-012 Arminger, Louis Earl Jr., Toward a Model of the Residential Location Decision Process: A Study of Recent and Prospective Buyers of New and Used Homes (master's thesis). Chapel Hill, North Carolina: University of North Carolina; 1966.

A study of housing purchasing designed to ascertain the motivations behind the purchase transaction and the trade-offs implicit in the location decision. Analyzes the degree to which purchasers made "rational" decisions (considered alternatives, consequences, opinions of experts) and the importance of prestige, accessibility, and public service quality to purchasers.

01-017 Bosselman, Fred P. Alternatives to Urban Sprawl: Legal Guidelines for Governmental Action. Prepared for the consideration of the National Commission on Urban Problems. Research Report No. 15. Washington, D.C.: U.S. GPO; 1968.

Analysis of techniques proposed for arresting urban sprawl.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-023 Chambers, John W. "Do Single Family Homes Pay Their Way?: Summary and Comment" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home Builders of the Greater Eastbay, Inc.; 1972.

A brief synopsis and updating of the 1968 study of the same name done for the Urban Land Institute by Ruth Mace and Warren Wicker. The update reflects changes in development costs resulting from inflation and other factors since 1965. Consideration of who must bear the costs of development, as well as its impact on schools and municipal services; and a net fiscal benefit is predicted for all non-educational government services.

01-024 Chapin, F. Stuart, Jr. Urban Land Use Planning. Second Edition. Urbana, Illinois: University of Illinois Press; 1965.

Outlines theory and historical background for urban land use planning. Provides detailed description of procedures required for preparing land use plan.

01-027 Clawson, Marion. Suburban Land Conversion in the United States. Baltimore, Maryland: The Johns Hopkins Press; 1972.

Comprehensive study of the effects of converting land on the urban fringe from rural to urban uses. Consideration of the impact of sprawl development patterns in the northeastern United States.

01-033 Eaves, Elsie. How the Many Costs of Housing Fit Together. Prepared for the consideration of the National Commission on Urban Problems. Research Report No. 16. Washington, D.C.: U.S. GPO; 1969.

Purpose of this report is to record basic average or median housing cost experience for both single-family detached houses and multi-unit apartments; to provide a framework that defines what it cost in 1966 to buy, finance, build and operate housing; and to indicate those upward pressures since 1966 on housing cost components that will have to be dealt with.

01-038 Finkler, Earl. Nongrowth as a Planning Alternative: A Preliminary Examination of an Emerging Issue. Chicago, Illinois: American Society of Planning Officials, Planning Advisory Service Report No. 283; 1972.

Re-examines the planner's traditional orientation toward growth and explores theory and practice which might lead to much more than merely redistributing growth.

01-040 F. W. Dodge Corporation. Building Cost Calculator and Valuation Guide. New York, New York: McGraw-Hill, Inc.; 1973.

Base square footage costs of prototypical residential, health care, retail and educational structures; includes local cost indexes.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-042 Gershen, Alvin E. Apartments: General Factors in Planning. Mountainside, New Jersey: Federation Planning Information Report Series, vol. 3:1; New Jersey Federation of Planning Officials; January 1968.

Outlines some factors which municipalities should consider in arriving at a policy decision of whether or not to permit apartments and which are termed important in approving apartment rentals. Considerations are 1) density, 2) municipal revenues, 3) site design factors, 4) other design considerations, and 5) code enforcement.

01-050 The Home Builders Association of Metropolitan Colorado Springs. Growth: An Analysis of Alternative Policies for Metropolitan Colorado Springs. Colorado Springs, Colorado: Colorado Springs Homebuilders Association; September 1972.

Assesses costs and benefits associated with urban growth. Includes optimum growth theories and quality of life considerations.

01-051 House & Home. "Rezoning for the PUD". House and Home (February 1971), pp. 58-63.

Suggests information needed by a developer to convince local governments of the benefits of the PUD approach. Considers tax revenues, schools, traffic, utilities, and environmental impact.

01-052 Huntoon, Maxwell C. Jr. "Is Housing's No. 1 Problem Finally Getting the Action it Demands". House & Home (August 1972), pp. 57-67.

Suggests use of "impact zoning" to minimize conflicts among developers, suburban local officials, and environmentalists confronted with proposed higher density planned unit developments. Considers four key parameters -- community and regional growth rates, infrastructure requirements, tax revenues versus increased public service costs, and environmental impact on the site and its surroundings. Offers case study of use of impact zoning in Berks County, Pennsylvania.

01-054 International City Managers' Association. Apartments in the Suburbs. Washington, D.C.: Management Information Service Report No. 245; 1964.

Reviews a series of municipal cost-revenue impact studies for suburban apartment complexes; evaluates the weaknesses inherent in such studies; reviews principles of sound planning for multi-family development.

01-055 International Conference of Building Officials. Uniform Building Code. Pasadena, California: ICBO; 1967.

Provides minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of buildings and structures.

01-060 Kettaneh, Anthony, ed. Project Romulus: An Adaptable High Density Urban Prototype. Cambridge, Massachusetts: The M.I.T. Press, M.I.T. Report No. 12; 1968.

Suggests physical requirements for an adaptable high density urban prototype; considers transportation, utilities, city government, financial organization, structure types and other variable including costs of developers and renters.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-064 Levitt & Sons, Inc. "Levitt's Comments" in The Report of The President's Committee on Urban Housing, Technical Studies, Vol. II. Washington, D.C.: U.S. GPO; 1968, pp. 1-52.

Offers a detailed breakdown of major variables in improved lot development costs, such as water and sewer charges, road construction, storm drainage systems, underground utility lines, etc. based on the experience of Levitt and Sons, Inc.

01-065 Levy, Stephen and Robert K. Arnold. An Evaluation of Four Growth Alternatives in the City of Milpitas, 1972-1977. Palo Alto, California: Institute of Regional and Urban Studies; August 1972.

Evaluates impacts of four residential growth alternatives on the city of Milpitas, California. Variables considered are sanitary district costs, unified school district costs, commercial development, neighborhood effects of further growth, etc.

01-068 Lozano, Eduardo E. "Housing Costs and Alternative Cost Reducing Policies". Journal of the American Institute of Planners, vol. 38:3 (May 1972), pp. 176-181.

Analyzes the structure of housing costs, including shelter, operating and total costs. Cost-reduction effects of alternative policies affecting interest rates, property taxes, and shelter costs are evaluated. Uses as an example suburban low rise multi-family units.

01-069 Mace, Ruth L. and Warren J. Wicker. Do Single Family Homes Pay Their Way?: A Comparative Analysis of Costs and Revenues for Public Services. Washington, D.C.: Urban Land Institute, Research Monograph No. 15; 1968.

Hypothetical subdivisions of new residential development are constructed in three comparative communities; analysis of public improvement costs, development costs and policies are made to determine whether new residential subdivisions are a tax liability.

01-071 Marketing Research Department, McGraw-Hill Information Systems Company. "A Study of Comparative Time and Cost for Building Selected Types of Low-Cost Housing" in The Report of The President's Committee on Urban Housing, Technical Studies, Vol. II. Washington, D.C.: U.S. GPO; 1968, pp. 1-52.

Development and construction costs for selected prototypical low cost housing units. Network analysis of activities involved in the development process and their time frames.

01-072 Marshall and Swift Publications. Marshall Valuation Service. Los Angeles: Marshall and Swift Publication Company; 1971.

Costs of construction for apartments, fire stations, government buildings, hospitals, libraries, medical offices, retail stores, single family homes and schools. Structures are classified according to building materials used.

01-084 Muller, Thomas, and Grace Dawson. The Fiscal Impact of Residential and Commercial Development: A Case Study. Washington, D.C.: The Urban Institute; 1972.

Presents general methodology for evaluating the fiscal effect on a county of proposed residential and nonresidential development. Can also be applied to other political jurisdictions with appropriate adjustments.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-085 Neutze, Max. The Suburban Apartment Boom: Case Study of a Land Use Problem. Washington, D. C.: Resources for the Future; 1968.

Considers why builders choose to locate in the suburbs instead of the city center and why the boom in suburban construction occurred, along with what kind of apartments are being built. An evaluation is made on comparing building of suburban apartments to suburban homes.

01-088 Norcross, Carl. Open Space Communities in the Market Place. Washington, D. C.: Urban Land Institute; 1966.

This is a study of 28 residential communities in the U. S. to determine how open space planning and related amenities are successful.

01-091 Pennsylvania Department of Community Affairs. Standards for Suburban Housing Mix: Bucks County, Pennsylvania. Philadelphia: Fels Center of Government, University of Pennsylvania; 1971.

Purpose of study is to develop objective standards for a "reasonable" or "appropriate" housing mix in any part of the county. It examines housing mix in relation to operations of several county agencies. Suggests policy implementation procedures.

01-095 Population Reference Bureau, Inc. "Suburban Growth: A Case Study". Population Bulletin, vol. 28:1 (February 1972).

Affords a view in some depth of the various factors which have characterized the suburbanization of Fairfax County, Virginia.

01-098 Rand Urban Policy Analysis Group. Alternative Growth Strategies for San Jose: Initial Report of the Rand Urban Policy Analysis Project. Santa Monica, California: The Rand Corporation; October 1971.

Provides suggestions for the design of land use policy options in a rapidly growing California region.

01-101 Rolph, Elizabeth. Decisionmaking by Residential Developers in Santa Clara County. Santa Monica, California: The Rand Corporation; March 1973.

Focuses on residential developers decision-making framework in an effort to understand the dynamics of urban land use.

01-103 Sacramento (Calif.) County Planning Department. General Plan--Appendix One: Economic Analysis. Sacramento, California: County Planning Department; March 1972.

Presents an analysis of economic impact of major recommendations in the preliminary 1990 general plan of Sacramento County. Gives benefit-detriment or savings-cost analysis. Evaluates urban limit line as a proposal for physically containing future growth.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-105 St. Louis County Planning Commission. Apartments in St. Louis County. Clayton, Missouri: St. Louis County Council; 1972.

Attempts to analyze the status of the apartment phenomenon in St. Louis County. The physical features of apartment developments are considered in conjunction with selected socio-economic characteristics of their residents to analyze the impact and desirability of multi-family construction in the county.

01-106 San Francisco Planning and Urban Renewal Association. Impact of Intensive High Rise Development in San Francisco: Step One-Part A, Initial Feasibility Test. San Francisco, California: SPUR; 1972.

Study design for research program to determine the impact of intensive high rise development on environmental quality, municipal service costs and revenues, transportation, business activities, and housing markets. Considerable detailing of possible impacts and sources of data to be used in their measurement.

01-107 Santa Clara (Calif.) County Planning Department. "The Costs and Revenues of Local Housing Development" in William Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.

A general discussion of costs and revenues accruing to local government as a result of new residential development. Suggests data requirements for modeling of these impacts in five test areas in Santa Clara County using information on street improvement, water supply, sewage disposal, open space, land and dwelling construction costs; general administration, police, fire, street maintenance services.

01-109 Schaenman, Philip et. al. Measurements for Evaluating Land Developments. Washington, D. C.: The Urban Institute; 1972.

Set of measurements for aiding evaluation of proposed rezonings or other land use changes. Spans economic and social impacts of development as well as physical changes in the environment. Citizens perception as well as objective data are considered.

01-110 Schmid, A. Allan. Converting Land From Rural to Urban Uses. Washington, D. C.: Resources for the Future; 1968.

A study of the effects of urban fringe land use change on land values.

01-117 Stegman, Michael A. "Accessibility Models and Residential Location". Journal of the American Institute of Planners. Vol. 1 (January 1969), pp. 22-29.

Questions the premise of planners that accessibility to workplace is the predominant factor in residential location; suburban residents show more concern for neighborhood quality than accessibility, concludes that accessibility to work or shopping may not be more difficult in suburban locations than in the inner core.

01-120 Sternlieb, George. "Municipal Costs as a Function of Residential Growth" in Housing Development and Municipal Costs. Section II. New Brunswick, N. J.: Center for Urban Policy Research, Rutgers University; Spring 1973.

Views from macro and micro levels the impact of growth upon municipal expenditure patterns.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-122 Sternlieb, George, and Robert Burchell. Planned Unit Development: An Analysis of Its Progress in New Jersey. Mountainside, New Jersey: New Jersey Federation of Planning Officials. Federation Planning Information Report, vol. 7:1; 1972.

Explains the nature of PUD and determines whether it is a good alternative pattern for growth or a device which consumes land in greater quantity than ever before.

01-123 Stollenwerk, Donald A. Cost Factors in the Choice of Subdivision Locations by Residential Developers. Chapel Hill, North Carolina: University of North Carolina Department of City and Regional Planning (thesis); 1964.

Identifies factors influencing variation in a developer's costs of locating residences at alternative sites and establishes their significance in relation to total cost.

01-124 Stone, P. A. "The Economics of Form and Organization of Cities". Urban Studies, vol. 9:3 (October 1972), pp. 329-346.

Discussion of the effect of density on housing costs and transportation systems.

01-125 Stuart, Darwin G. and Robert B. Teska. "Who Pays For What: A Cost-Revenue Analysis of Suburban Land Use Alternatives". Urban Land, vol. 30:3 (March 1971), pp. 3-16.

Evaluates the costs incurred by a community in providing more, less, or different services that reflect the varying demands of alternative land uses.

01-127 Syracuse, Lee A. The Single Family Home A Financial Asset to the Community. Washington, D.C.: Home Building Press Information Bulletin No. 3; 1968.

Explains the nature and use of municipal-cost-revenue impact studies to the layman. Discusses the costs of public improvement and who must pay them. Uses as a basis for discussion a study by Ruth Mace and Warren Wicker for the Urban Land Institute entitled Do Single Family Homes Pay Their Way? Suggests a simplified methodology for predicting the impact of new subdivisions on surrounding localities.

01-128 Szego, G. C. Cost Reducing Condominium Systems for Low Cost Homes. Arlington, Virginia: Institute for Defense Analysis, Program Analysis Division; 1968.

Investigates possibility of making substantial savings in first-cost and operating cost of a small individual house. Looks into alternative means of providing traditional services such as heating, ventilation, air conditioning; sewage and solid waste disposal.

01-134 United States Savings and Loan League. Land Planning: Better Housing Environments, Vol. 1b. Chicago: USSLL; 1970.

Evaluates the effect of new land use planning techniques, such as planned unit development and clustering. Suggests principles for improved physical design of new developments.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-135 Urban Land Institute. Apartment Communities: The Next Big Market. Washington, D. C.: ULI Technical Bulletin No. 61; 1968.

A study of the growing importance of planned garden apartment communities in the housing market; offers information on construction cost and unit size; examines the factors which attracted residents to four complexes in the Kansas City area, as well as reasons for remaining or moving.

01-136 Urban Land Institute. Density: Five Perspectives - A ULI Special Report. Washington, D. C.: ULI; 1972.

Describes emerging patterns of growth and density; how they can be directed by national policy; constraints that prevent change in density patterns.

01-137 Urban Land Institute. The Effects of Large Lot Size on Residential Development. Washington, D. C.: ULI, Technical Bulletin No. 32; 1958.

Analyzes the cost effects of variations in lot area, lot frontage, and lot development. Standards on infrastructure costs; the effects of lot size on municipal costs and revenues.

01-138 Urban Land Institute. Innovations vs. Traditions in Community Development. Washington, D. C.: ULI Technical Bulletin No. 47; 1963.

Comparative analysis of innovative and conventional forms of residential building types and land development patterns. Points up reasons for major revisions in public regulations. Underlines the economies that must be realized by the developer.

01-139 Urban Land Institute. Project Reference File. Washington, D. C.: Urban Land Institute (various issues); 1971-present.

Brief descriptions and project information for planned residential developments in a variety of locations throughout the United States.

01-147 Harvey, R. O. and W. A. V. Clark. "The Nature and Economics of Urban Sprawl". Land Economics, vol. 41:1 (1965), pp. 1-9.

Physical pattern of sprawl is described with special focus on factors which promote sprawl. The cost of sprawl to its occupants and to society is discussed.

01-148 Kenney, Kenneth B. The Residential Land Developer and His Land Purchase Decision. Chapel Hill, North Carolina: The University of North Carolina; 1972.

Analyzes decision making process of land purchase. Presents schematic model of the land development decision which considers site characteristics and economic feasibility.

01-149 Loewenstein, Louis K. and David W. Walters. Municipal Cost/Revenue Analysis for Planned Unit Developments. Special Report No. 9. Berkeley, California: Institute of Urban and Regional Development, University of California; 1973.

Presents detailed discussion of the revenues produced by and costs attributable to proposed subdivision.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 01: RESIDENTIAL (continued)

01-150 San Francisco Planning and Urban Renewal Association. Impact of Intensive High-Rise Development in San Francisco: Step One - Part B, A Final Feasibility Report. San Francisco: SPUR; 1972.

Final study design for research program to determine the impact of intensive high rise development on environmental quality, municipal service costs and revenues, transportation, business activities and housing markets. Considerable detailing of possible impacts and sources of data to be used in their measurement. Includes volumes on block analysis, the environment, municipal finance, and urban economics.

01-151 State of Hawaii, Department of Planning and Economic Development. Central Oahu Planning Study. A Summary Report and four technical supplements. Honolulu, Hawaii. Planning Division, Department of Planning and Economic Development; October 1972.

Analyzes the broad issues of urban growth on Oahu raised by proposals to allow the extension of the urban land use district into the agricultural plains of Central Oahu. Focuses on impacts of urban growth and the State government's responsibilities and concerns for meeting these needs.

01-152 U. S. Bureau of the Census. Construction Reports: Series C-25: Characteristics of New One-Family Homes, 1971. Washington, D. C.: U. S. Department of Commerce; 1972.

Data on floor areas, number of bedrooms, heating systems, plumbing, construction materials, and amenities for single family homes built in 1971.

01-153 Real Estate Research Corporation. Historical Analysis of Unit Land Prices. Prepared for the Department of Housing and Urban Development. Unpublished. April 1973.

Gives residential and commercial land sales prices for major metropolitan cities including fringe areas.

01-154 Van Alstyne, Carol (ed.) Land Bank Handbook. Greensboro, North Carolina: Piedmont Triad Council of Governments; 1972.

Focuses on acquisition and development of land for low and moderate income housing; considerable attention is paid to the fundamentals of determining the feasibility of a housing development; systems analysis techniques developed for land bank project.

01-155 Bartholomew, Harland. Land Uses in American Cities. Cambridge, Massachusetts: Harvard University Press; 1955.

Contains outline of survey methodology and survey results for land uses in central cities, satellite cities, and urban areas.

01-156 Gleye, Paul H. Santa Fe Growth Impact Study. Prepared for the Santa Fe City Planning Department and the Frontera Del Norte Foundation. Santa Fe, New Mexico: (Unpublished); 1973.

Analyzes the effects on the public economy of new construction on Santa Fe's urban fringe. Considers alternative impacts of placement of new homes along five growth corridors and at four points within each corridor. Four densities of development are examined at each location. Some consideration of commercial cost revenue impacts.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 02: OPEN SPACE/RECREATION
Classification: Primary

02-001 American Society of Planning Officials. Standards for Outdoor Recreational Areas. Chicago, Illinois: American Society of Planning Officials; 1965.

Suggests planning and design standards for outdoor recreational facilities.

02-002 Baltimore Regional Planning Council. General Development Plan for the Baltimore Region. Baltimore, Maryland: Baltimore Region Planning Council; September 1972.

Plan for future 6 county regional development for Baltimore; considers regional and local open space, water and sewer facilities, highway improvements, energy, health and housing needs. Includes information on anticipated capital and operating costs.

02-003 Bangs, Herbert P. Jr. and Stuart Mahler. "Users of Local Parks". Journal of the American Institute of Planners. vol. 36:5 (September 1970), pp. 330-334.

Baltimore, Maryland passed a law requiring developers to set aside a portion of their subdivisions for small local parks. The program was checked to see how well the space was being used and if the original recommendations for determining size and location were correct.

02-004 Brazell, E. C. "Comparative Costs for Open Space Communities: Rancho Bernardo Case Study". Land-Use Controls, vol. 1:4 (1967), pp. 35-40.

Gives quantitative information on comparisons of basic improvement costs; sewer, water service, drainage, etc.

02-006 Cicchetti, Charles J. "Outdoor Recreation and Congestion in the United States". Population, Resources, and the Environment, Volume 3, Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.

Theoretical and general discussion of supply and demand for recreation, projected to various time periods by means of various scenarios, representing combinations of population change and availability of recreation areas.

02-019 Koppelman, Lee Edward. A Plan for Open-Space in Suffolk County. Hauppauge, New York: Suffolk County Planning Commission; 1964.

Contains a general inventory of open-space lands with reference to school and municipal recreation facilities; regional and private facilities and non-recreation open space. Gives economic and ecological reasons for open space planning and means for implementation.

02-023 Livingston and Blayney. Open Space vs. Development: Foothills Environmental Design Study. Palo Alto, California: City of Palo Alto Planning Department; February 1971.

Study focuses on environmental design rather than choice between development or open space. Variables considered are ecology; visual and recreation factors; geology and soils; hydrology; land use alternatives. Conclusions and recommendations follow.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 02: OPEN SPACE/RECREATION (continued)

02-027 Mid-America Regional Council. Happiness is a Green Place. Kansas City, Missouri: Mid-America Regional Council; 1972.

This plan for open space in the Kansas City Metropolitan Region tries to accurately measure its demand; calculate facilities and activities considered the most important; determine which locations are most accessible and desirable; set priorities that can be used as guidelines if demand exceeds fiscal capacities.

02-029 Moss, Philip I. "Pricing Recreation Services" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D. C.: The Urban Institute; 1972, pp. 335-350.

Compares park-recreation spending with total city operating expenditures for 15 selected cities. Also gives per capita operating expenditures for parks and recreation.

02-032 Planning Policy Committee of Santa Clara County. An Urban Development/Open Space Plan for Santa Clara County. San Jose, California: Planning Policy Committee of Santa Clara County; September 1972.

Examines countywide open space and urban development issues and proposes recommendations for policies, plans and action programs which local governments in Santa Clara County can use to deal with these issues.

02-035 Real Estate Research Corporation. "Economic Analysis of the Foothills Environmental Design Study" in William T. Leonard's Growth Cost Revenue Studies. Berkeley: Associated Home Builders of the Greater East Bay, Inc.; 1972.

Critique of a plan for guiding the anticipated development of the Foothills Planning area in Palo Alto, California, consisting of 7,500 acres of largely undeveloped land. Considers the impact of reserving all except 69 acres for public open space. Critically reviews the methodology used and conclusions reached by the original study team. Addresses itself to the regional implications of the recommendations. Special emphasis on school system impacts.

02-036 Recht, Richard J. and Robert J. Harmon. Open Space and the Urban Growth Process. Berkeley, California: Institute of Urban and Regional Development, University of California, Research Report No. 31; 1969.

Reports on economic aspects of a regional open space proposal and gives evaluation of additional benefits such as the public savings in utility costs and government expenditures likely to result from an open space program. Also examines economic feasibility of 2 different spatial patterns of urban development - with present trends continued and open space preserved.

02-041 Tulsa Metropolitan Area Planning Commission. Tulsa Metropolitan Area Open Space Plan. Tulsa, Oklahoma: Tulsa Metropolitan Area Planning Commission; 1968.

This report provides a plan for the open space system for design year 1990. Its purpose is to preserve the natural environmental processes such as the water cycle, vegetation, and wildlife habitat and to meet the recreational needs of the metropolitan area. Geology, soils, water resources, topography and vegetation were inventoried and evaluated to determine open space resource and conservation areas of the metropolitan area; includes important public recreation standards recommended by Oklahoma Industrial Development and Parks Commission.

02-042 U. S. Bureau of Outdoor Recreation. Outdoor Recreation Space Standards. Washington, D. C.: U. S. GPO; 1967.

Gives standards for all scales of parks, and recreation areas and for activities such as golf, swimming, camping, boating, etc.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 02: OPEN SPACE/RECREATION (continued)

02-049 Whyte, William H. Cluster Development. New York, New York: American Conservation Association; 1964.

A practical and non-technical summary of issues of cluster development planning; provides overview as well as examples of cluster development statutes and homeowner association organizations.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 03: SCHOOLS
Classification: Primary

03-001 Barton-Aschman Associates, Inc. The Barrington, Illinois Area: A Cost-Revenue Analysis of Land Use Alternatives. Chicago, Illinois: Barrington Area Development Council; 1970.

Detailed study of impact of different land use developments on costs and revenues for public facilities and services; schools, utilities; park, recreation and open space; streets, road and highway improvements. Includes 12 hypothetical land-use alternatives; offers quantified cost data.

03-005 Educational Facilities Laboratories. The Cost of a Schoolhouse. New York, New York: Educational Facilities Laboratories; 1960.

A data source on school construction costs and design specifications.

03-007 Fairfax County Planning Commission. Five Year Countywide Development Program. Vol. 1 - Presentation of Alternatives. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.

Offers a methodology for selecting least-cost growth areas for Fairfax County, Virginia in the Washington, D. C. metropolitan area. Evaluates the environmental limitations, transportation requirements, low and moderate income housing distributions, and capital improvement requirements under alternative growth assumptions.

03-008 Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 2 - Financial Plan. Fairfax, Virginia: Fairfax County Board of Supervisors; 1972.

Presents county capital expenditure operating expense, and revenue projections for eight alternative future growth patterns for Fairfax County, Virginia.

03-009 Fairfax County Planning Commission. Five-Year Countywide Development Program: Volume 3 - Evaluation of Standards and Criteria. Fairfax, Virginia: Fairfax County Board of Supervisors; August 1972.

Presentation and evaluation of standards for schools, parks, fire, and police services, libraries, health facilities, water, sewer, and storm drainage systems used in predicting the impact of growth alternatives in Fairfax County, Virginia.

03-010 Holley, Paul. School Enrollment by Housing Type. Chicago, Illinois: American Society of Planning Officials; 1966.

Discusses the educational needs of the community by determining the size of the school age population, increases that can be expected from proposed housing developments, and additions to school facilities which may be required.

03-012 Madison-Madison-International Architects-Engineers-Planners. Community Facilities - Adequacy Standards and Cost Estimates. Washington, D. C.: Madison-Madison-International, Architects-Engineers-Planners; (undated).

Attempts to outline the community facilities likely to be needed in a new town. Requirements presented here are acceptable standards for community facilities that are recognized as necessary to meet demands associated with population growth.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 03: SCHOOLS (continued)

03-016 Sternlieb, George. The Garden Apartment Development: A Municipal Cost-Revenue Analysis. New Brunswick, New Jersey: Bureau of Economic Research, Rutgers University; 1964.

Study centers around an investigation of garden apartments with reference to the tax revenue derived from their development as compared with costs of educating the children of its tenants.

03-017 Westchester County Department of Planning. School Taxes and Residential Development. White Plains, New York: Westchester County Department of Planning; 1971.

Provides comparative data on expenditures, sources of revenue and tax rates of various school districts; material provided on mechanics of state aid to school districts and on assessment procedures; analysis of school costs and school tax revenues generated by various types of residential development.

03-018 Wheaton, William L. and Morton Schussheim. The Cost of Municipal Services in Residential Areas. Washington, D.C.: U.S. GPO; 1956.

Analyzes three suburban Boston communities to ascertain the costs of additional residential growth. Costs are calculated for a fixed number of housing units at different densities and at alternative locations (scattered and concentrated growth areas). Considers costs of schools, street, sewer, water, and fire protection services.

03-019 U.S. Department of Health, Education and Welfare, National Center for Educational Statistics. Statistics of Local Public School Systems, 1968-1969: Finances. Washington, D.C.: U.S. GPO; June 1971.

Contains national estimates for several classifications of school systems as well as basic data tables giving quantitative financial data.

03-021 Council of Educational Facilities Planners. Guide for Planning Educational Facilities. Columbus, Ohio: Council of Educational Facilities Planners; 1972.

Contains design standards for planning educational facilities, from elementary to senior high school in particular. Suggests appropriate sizes of facilities and sites.

03-023 School Management. "1972 Cost of Building Index". School Management (September 1972), pp. 19-24.

Gives construction costs for elementary and secondary schools according to pupil enrollment.

03-024 School Management. "How to Use the New Cost of Education Index". School Management (January 1973), pp. 22-44.

Gives per pupil and total school expenditures for operating and maintenance costs.

03-025 Shaw, Jane S. "Ideas from Award Winning Schools". Nations Schools, vol. 91:1 (January 1973), pp. 47-67.

Gives statistics on site, structural system, building area, construction costs and architects and professional fees for award winning schools.

03-026 U.S. Department of Health, Education and Welfare. Statistics of Public Elementary and Secondary Day Schools-Fall 1971. Washington, D.C.: U.S. GPO; 1971.

Lists information on enrollment, pupil-teacher ratios, number of high school graduates, rooms available and in use, expenditures and average salaries.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 04: HEALTH SERVICES
Classification: Primary

04-001 American Hospital Association. "Hospitals". Journal of the American Hospital Association, vol. 45:15 (August 1971), pp. 445-493.

Presents detailed statistical data of registered hospitals in the U. S. and associated areas. Utilization, personnel and financial data are presented by various hospital classifications and by census division and state. Includes summary of facilities and services in hospitals.

04-005 Cardwell, Rosson L. "How to Measure Metropolitan Bed Needs". Modern Hospital, vol. 103:2 (August 1964), pp. 107-112.

Gives formulae for predicting hospital size for a given area.

04-009 Iowa State Department of Health. Construction Cost of Hospitals and Related Health Facilities. Des Moines, Iowa: Iowa State Department of Health; 1959.

Projects costs are broken down to construction, movable equipment and fees.

04-015 Hospital Planning Council of Metropolitan Chicago. Space Criteria for Hospital Evaluation. Chicago, Illinois: Hospital Planning Council of Metropolitan Chicago; 1965.

Gives space criteria for hospitals with respect to nursing, professional, supportive, and administrative services. Data given in gross feet per bed and for 100 to 400 beds.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 05: POLICE AND FIRE SERVICES
Classification: Primary

05-002 Gabler, L. R. "Economies and Diseconomies of Scale in Urban Public Sectors". Land Economics, vol. 45:4 (November 1969), pp. 425-434.

Deals with the effect of population size on city per capita expenditures. It is specifically concerned with three population factors--size, density and rate of change on the provision of certain urban public services.

05-004 National Board of Fire Underwriters. "Fire Department Standards--Distribution of Companies and Response to Alarms". National Board of Fire Underwriters, Special Interest Bulletin No. 315. New York, New York: American Insurance Association; January 1963.

Gives revised standard distances stations should be from high value districts.

05-006 National Board of Fire Underwriters. "Fire Department Stations-Planning the Location". National Board of Fire Underwriters, Special Interest Bulletin No. 176. New York, New York: American Insurance Association; February 1963.

Gives standard distances of stations from high value districts and five general considerations for planning fire department stations.

05-007 National Board of Fire Underwriters. "Water Distribution System on Engineering". National Board of Fire Underwriters, Special Interest Bulletin No. 258. New York, New York: American Insurance Association; December 31, 1947.

Gives minimum standard size of mains for hydrant supply for all future construction.

05-010 NFDA Fire Service Department. Fire Service Directory, Third Edition. Boston, Massachusetts: National Fire Protection Association; 1970-1971.

Tabulation of budgets, personnel, working schedules, fire companies, stations, and related information for fire departments throughout the country.

05-014 Kimball, Warren Y. How to Judge Your Fire Department. Boston, Massachusetts: National Fire Protection Association; 1972.

Provides commentary on what is necessary to evaluate and improve fire services to the public.

05-015 National League of Cities. The Grading of Municipal Fire Protection Facilities: Its Relationship to Fire Insurance and to the Municipality's Fire Protection Policy. Washington, D.C.: National League of Cities; July 1967.

Prepared to acquaint municipal policy making and policy-recommending officials with 1. the methods and standards used for the determination of fire insurance rates, 2. how the grading classification affects fire insurance rates and 3. how a municipality can prepare a grading survey.

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Reference Number

CODE 05: POLICE AND FIRE SERVICES (continued)

05-016 Tryon, George H. and Gordon P. McKinnon. Fire Protection Handbook: Thirteenth Edition. Boston, Massachusetts: National Fire Protection Association; 1969.

Gives information on fire protection laws, regulations and standards, public fire services, detection, alarm and fire guard services, transportation, building equipment, and facilities.

05-017 U. S. Department of Labor, Manpower Administration. Manpower Implications of New Legislation and New Federal Programs. Washington, D. C.: U. S. Department of Labor, Manpower Administration; April 1971.

Gives estimated employment in local police departments and police department employees per 10,000 resident population.

05-018 Vogel, Joshua H. Police Stations Planning and Specifications. Seattle, Washington: Bureau of Governmental Research and Services; 1954.

Survey undertaken in Washington to determine what constituted satisfactory facilities for jails and police stations in terms of size and location and shows variable requirements of Washington cities with different populations for law enforcement.

05-020 Wilson, James Q. Varieties of Police Behavior. Cambridge, Massachusetts: Harvard University Press; 1968.

Examines characteristics of police operations, and outlines legal and organizational constraints under which police officers must operate. Gives analysis of police practices and behavior in a sample of eight communities.

05-021 U. S. Department of Justice. Federal Bureau of Investigation. Uniform Crime Reports for the United States. Washington, D. C.: Department of Justice; 1971.

Presents annual summary of statistics for numbers and types of crimes, arrests, and police employment data. Allows comparison of urban, suburban, and rural areas.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION
Classification: Primary

06-003 Alesch, D. J. and L. A. Dougharty. Economies of Scale in State and Local Government. Prepared for the State of California Council on Intergovernmental Relations. Santa Monica, California: The Rand Corporation; 1971.

Describes the relevancy of economies-of-scale analysis to public policy planning; sets forth method of evaluating municipal facilities to determine economy or diseconomy of scale; contains demonstration analysis of an education program.

06-005 Ashley, Thomas J. "Cost-Revenue Analysis of New Housing Development in the City of San Diego" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay, Inc.; November 1972.

Analysis of the impact of increased residential development on the local tax base, the demand for municipal services, and the costs of providing these services. Considers costs of general administration, public safety, streets, parks, sanitation, water, sewerage. Does not consider schools. Accounts for cost/revenue changes which would occur irrespective of new development.

06-010 City of Milpitas, Planning Department. City of Milpitas: History and Evaluation of the 1971-72 Local Government Structure Study. Milpitas, California: City of Milpitas, Planning Department; 1972.

Analyzes five existing residential development types and densities plus pupils generated to determine impacts of new construction. Details growth policy changes resulting from study recommendations. Suggests method of limiting building permits based on projected school impacts.

06-013 English, John Christopher. The Impact of Land Use Patterns on Public Service Expenditures in the Twin Cities Metropolitan Area. St. Paul, Minnesota: University of Minnesota, PhD dissertation (unpublished); 1967.

Case study of land use patterns on public service expenditures; analysis of tax base; land use patterns and socio-economic characteristics.

06-019 Hirsch, Werner Z. "The Supply of Urban Public Services" in Perloff and Wingo's (eds.) Issues in Urban Economics. Baltimore, Maryland: Johns Hopkins Press; 1968, pp. 477-525.

A methodology for measuring and evaluating urban public service production both quantitatively and qualitatively; consideration of the economies of scale in the provision of public services and its relationship to the issues of suburban government consolidation.

06-021 International City Management Association. The Municipal Year Book, 1972. Washington, D.C.: International City Management Association; 1972.

Size of staff and expenditures for planning for individual cities and by city size; also fire and police expenditures.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued)

06-022 Isard, Walter and Robert Coughlin. Municipal Costs and Revenues Resulting from Community Growth. Wellesley, Massachusetts: Chandler-Davis Publishing Co.; 1957.

Gives capital outlays and maintenance expenditures for almost all residential and industrial-residential community needs such as storm sewers, sanitary sewers, schools, roads, solid waste collection and disposal, police and fire protection.

06-027 Mace, Ruth L. Municipal Cost-Revenue Research in the United States. Chapel Hill, North Carolina: The Institute of Government; 1961.

Sets forth fundamentals of cost-revenue analysis using case studies on urban redevelopment; suburban land-uses; and annexation; offers critique of past methodologies used by public officials to evaluate cost-revenue impacts of governmental action.

06-028 Metro Metrics, Inc. The Economics of Urban Growth: Costs and Benefits of Residential Construction. Washington, D. C.: Metro Metrics, Inc.; 1971.

Provides in-depth analysis of cost and benefits of residential construction as part of urban growth; examines fiscal policies, development costs and economics impacts.

06-030 Real Estate Research Corporation. Fiscal Impact Models for New Communities. Chicago, Illinois: Real Estate Research Corporation; 1972.

Studies of the impacts of planned new community development on municipal costs and revenues; special consideration given to the impact on school systems of pupils generated by the new towns. Prepared for the Harbison and Shenandoah New Communities. Also applicable to smaller scale residential development.

06-031 Regional Plan Association. Public Services in Older Cities. New York, New York: Regional Plan Association; 1968.

Analyzes per capita governmental expenditures in older cities versus surrounding suburban areas for following services: health and welfare, schools, parks, recreation, and transportation. Discusses alternative methods of financing public services.

06-032 Scott, Claudia Devita. Forecasting Local Government Spending. Washington, D. C.: The Urban Institute; 1972.

Sets forth basic principles of forecasting local government expenditures for police, fire, general administration, education, public works, parks and recreation, public health and welfare.

06-036 Thompson, Wilbur R. A Preface to Urban Economics. Baltimore, Maryland: Johns Hopkins Press; 1965.

A general textbook on urban economics, of special interest are chapters 7 and 8, which deal respectively with economies of scale in the provision of public services and the costs of urban sprawl development patterns.

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Reference Number

CODE 06: GOVERNMENTAL REGULATION AND ADMINISTRATION (continued)

06-037 U.S. Department of Commerce, Bureau of the Census. Local Government Finances in Selected Metropolitan Areas and Large Counties: 1969-70. Washington, D.C.: U.S. GPO; 1971.

Gives statistics on finances of local governments in 72 selected SMSA's and their county areas; per capita expenditures computed; also covers 61 large counties outside the 72 major SMSA's.

06-040 Wainwright and Ramsey, Inc. "Study of the Anticipated Economic Impact upon the City of Alameda and the Alameda Unified School District Occasioned by the Proposed Harbor Bay Isle Development on Bay Farm Island" in William T. Leonard's Growth Cost-Revenue Studies. Berkeley, California: Associated Home-Builders of the Greater Eastbay Inc.; November 1972.

Cost/Revenue analysis of a proposed large scale planned development on general government administration and school systems.

06-044 Wheaton, William. "Applications of Cost-Revenue Studies to Fringe Areas". Journal of the American Institute of Planners (November 1959), pp. 170-174.

Discusses three major applications of cost-revenue studies for fringe areas including residential uses, industrial balance uses, and annexation uses.

06-048 McCallum, David Livingston. Case Study of the Cost of Government Activities. Chapel Hill, North Carolina: University of North Carolina; 1956.

Develops and applies method of analyzing the relationship between residential densities and the cost of carrying on the activities of a government unit in urban residential areas. Much quantitative, although outdated, information is given on police and fire.

06-049 San Diego Joint City/County Economic Analysis Project. The Economics of Urbanization. Phase 1 - Final Report. San Diego, California: City and County Joint Task Force; 1973.

Cost-revenue technique using computerized analysis designed to provide economic information related to growth issues. Includes data on important cost and revenue inputs for San Diego County and city governments.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 07: SOLID WASTE COLLECTION AND DISPOSAL
Classification: Primary

07-003 Committee on Solid Wastes American Public Works Association. Refuse Collection Practice. Chicago, Illinois: Public Administration Service; 1966.

Basic technical textbook on collection practices; major emphasis on truck collection; very little data on innovative methods; discusses service requirements using existing practices.

07-007 Feldman, Stephen L. "Waste Collection Services: A Survey of Costs and Pricing" in Selma Mushkin's (ed.) Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 217-242.

Brief summary of solid waste statistics and costs; costs are for larger communities.

07-008 George, Patricia Conway. The CMI Report on Solid Waste Control. Washington, D.C.: Communications Marketing CMI Inc.; 1970.

Overview of current and potential methods for solid waste control; stresses recycling and disposal processes.

07-011 Grinstead, Robert R. "Machinery for Trash Mining". Environment, vol. 14:4 (May 1972), pp. 34-42.

Review of potential for resource recovery from solid waste; discusses and quantifies different materials, and different methods of extraction with costs of operation and potential value of resulting material.

07-013 Gueron, Judith M. "Economics of Solid Waste Handling and Government Intervention" in Selma Mushkin's Public Prices for Public Products. Washington, D.C.: The Urban Institute; 1972, pp. 173-216.

Analyzes interrelation between solid waste generation, disposal, cost and governmental involvement; describes models for estimating benefits of different fiscal and procedural methods and of recycling.

07-019 McLean, Mary. Planning for Solid Waste Management. Chicago, Illinois: American Society of Planning Officials; 1971.

Surveys solid waste sources and disposal methods; describes a regional inventory of waste from all sources including residential, agricultural, and industrial; details planning principles for sanitary landfill sites.

07-020 Meyer, Judith G. "Renewing the Soil". Environment, vol. 14:2 (March 1972), pp. 22-23.

Reviews state-of-the-art of solid waste composting. Discusses reasons for failure of most existing plants as well as ecological benefits of the system. Cites costs and quantified data.

07-021 Otton, Edmond G. Solid-Waste Disposal in the Geohydrologic Environment of Maryland. Maryland Geological Survey; 1972.

Analyzes environmental effects of land fill solid waste disposal in high rainfall region; different geologic formations compared and effects on water quality analyzed.

07-022 Schneider, William J. Hydrologic Implications of Solid-Waste Disposal. Washington, D.C.: U.S. Geological Survey; 1970.

Brief summary of known and projected effects of solid waste sites on groundwater; illustrated with actual and hypothetical examples.

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Reference Number

CODE 07: SOLID WASTE COLLECTION AND DISPOSAL (continued)

07-023 Schweighauser, Charles A. Solid Waste Practices in Berkshire County: The Problems and Possibilities of Community Disposal Facilities. Williamstown, Massachusetts: Center for Environmental Studies; 1969.

Fairly brief and well organized program for rural area solid waste collection and disposal; documents existing conditions; estimates costs and processes for changing to sanitary land fill.

07-025 Sorg, Thomas J. and H. Lanier Hickman, Jr. Sanitary Landfill Facts. Washington, D. C.: U. S. GPO; 1970.

Brief review of land fill practices and recommendations.

07-029 U. S. Environmental Protection Agency, Bureau of Solid Waste Management. Solid Waste Disposal Study: Technical Report, Genesee County, Michigan. Cincinnati, Ohio: U. S. Environmental Protection Agency, Bureau of Solid Waste Management; 1969.

Interim study of solid waste problem in Genessee Co. Michigan: thorough descriptions of waste types and various disposal methods; problems and costs of alternative disposal schemes analyzed.

07-030 U. S. Environmental Protection Agency, Bureau of Solid Waste Management. A Systems Study of Solid Waste Management in the Fresno Area. Washington, D. C.: U. S. GPO; 1969.

Thorough study of solid waste management for Fresno area; analyzes various systems of collection and disposal on economic, practical and environmental grounds; uses systems analysis to arrive at conclusions.

07-031 U. S. Environmental Protection Agency. Collection and Disposal of Solid Waste for the Des Moines Metropolitan Area. Washington, D. C.: U. S. EPA; 1971.

Report of study and recommendations for solid waste program at Des Moines; detailed analysis of collection procedures with recommended changes; review of current technology of disposal.

07-033 U. S. Environmental Protection Agency. Solid Waste Handling and Disposal in Multistory Buildings and Hospitals. U. S. GPO; 1972.

Description and analysis of solid waste handling methods for multi-story buildings with emphasis on hospitals; details proposed pilot project using pneumatic transport, central pulping station and disposal process combined with sewage treatment.

07-034 U. S. Environmental Protection Agency. Solid Waste Management in Residential Complexes. Washington, D. C.: U. S. GPO; 1971.

Examination of "state of the art" methods of solid waste collection; technologies, costs and applicability to different types of development; some innovative methods explored; proposals for test installations described; impacts of different methods of treatment examined; recycling not emphasized.

07-035 U. S. Environmental Protection Agency. A Study of Residential Solid Waste Generated in Low-Income Areas. Cincinnati, Ohio: U. S. EPA; 1972.

Brief analysis of solid waste generated by different housing types in low income areas; contains statistics of total solid waste quantity and its components; of comparative figures for other income groups included.

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Reference Number

CODE 07: SOLID WASTE COLLECTION AND DISPOSAL (continued)

07-038 Northeastern Illinois Planning Commission. Solid Waste Report: Technical Report No. 7. Chicago, Illinois: NIPC; 1973.

A report on the "state of the art" of solid waste collection and disposal practice, with special emphasis on the Chicago metropolitan area. Includes consideration of cost/benefits associated with various service modes. Discusses new technologies and their applicability for regional solid waste management. Analysis of environmental effects of alternative practices is included.

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Reference Number

CODE 08: COMMERCIAL
Classification: Primary

08-002 Chicagoland Development. "Woodfield Spur to Growth of Northwest Suburb". Chicagoland Development (September 1971), pp. 14-24.

Gives information on Woodfield with reference to parking and traffic, tenants, bus service, movie theaters, and standards on other major retail developments.

08-003 City of Milpitas, Planning Department. Analysis of Retail Commercial Development in the City of Milpitas, 1972-1977: A portion of the Local Government Structure Study. Milpitas, California: City of Milpitas, Planning Department; 1972.

Determines the economic effects of growth upon the community. An economic impact analysis with emphasis upon the growth of retail shopping within the town center. Purpose of study was to ascertain what type of retail commercial development the community could expect and what the timing of such development might be.

08-006 Department of Metropolitan Development, Division of Planning and Zoning. Comprehensive Continuing Planning Program for the Indianapolis-Marion County Metropolitan Area. Indianapolis-Marion County, Indiana: Department of Metropolitan Development, Division of Planning and Zoning; September 1970.

Outlines policy for development of commercial areas in Marion County, Indiana, with reference to standards and designs which will allow well-integrated and well-planned shopping areas.

08-010 Hoyt, Homer. "Land Values in Shopping Centers". Urban Land, vol. 28:7 (July/August 1969), pp. 3-14.

Describes factors involved in determining land values for retail stores along with statistics for metropolitan areas.

08-014 Simmons, James. The Changing Pattern of Retail Location. Chicago, Illinois: The University of Chicago, Department of Geography Research Paper No. 92; 1964.

Gives information on present knowledge of retail structure and the retail structure in Chicago; changes in operation of individual firms; planned shopping centers and models of retail change.

08-015 Urban Land Institute. The Dollars and Cents of Shopping Centers. Washington, D.C.: The Urban Land Institute; 1972.

Thorough consideration of operating and capital costs for regional, community, and neighborhood shopping centers; considers tenant types; offers data by geographical region.

08-016 Urban Land Institute. "Oakland Mills Village Center" Project Reference File, vol. 1:3 (1971).

Description of Oakland Mills Village Center in new city of Columbia. Illustrates design community facilities; planning and zoning controls, and market considerations and standards used in the planning of the commercial center.

08-020 Glen Ellyn Plan Commission. Development Plan: Glen Ellyn, Illinois. Glen Ellyn, Illinois: General Planning and Resource Consultants; May 1971.

A good example of analysis and planning of a suburban community, including sections on commercial, public facilities, and land use. Contains data on typical commercial strip development.

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Reference Number

CODE 08: COMMERCIAL (continued)

08-021 Cleveland, Donald E. and Edward A. Mueller. Traffic Characteristics at Regional Shopping Centers. New Haven, Connecticut: Bureau of Highway Traffic, Yale University; 1961.

Analysis of traffic movement into and within regional shopping centers, with emphasis on traffic flow by time of day, week, and year.

08-022 Los Angeles Regional Transportation Study. 1961 Shopping Center Study: Preliminary Results. Los Angeles, California: Los Angeles Regional Transportation Study, Division of Highways, State of California; 1962.

Study of traffic characteristics found within and adjacent to large shopping centers, including measures of traffic flows, trip lengths, trip purpose, and shopping and purchase characteristics.

08-023 Skokie Police Department (Skokie, Illinois). Shopping Center Survey. Skokie, Illinois: Skokie Police Department; 1963.

Reviews police practices for patrolling shopping centers, based on twelve centers nation-wide.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 09: SANITARY SEWERAGE
Classification: Primary

09-001 Anderson, Marshall L. "Community Improvements and Services Costs". Journal of the Urban Planning and Development Division, vol. 99:UPI (March 1973), pp. 77-92.

Investigates effect of varying urban development densities on the costs of building, operating and maintaining sewer systems in suburban communities; deals exclusively with single-family home areas.

09-002 Downing, Paul B. The Economics of Urban Sewage Disposal. New York, New York: Frederick A. Praeger, Inc.; 1969.

Analyzes cost differentials for different types and size of sewage treatment plant; discusses problems of peak loads; technical alternatives, government regulation.

09-003 Downing, Paul B. "Extension of Sewer Service at the Urban-Rural Fringe". Land Economics, vol. 45:1 (February 1969), pp. 103-110.

Capital and operating costs for collection, transmission, and treatment of sewage at the urban fringe by distance from treatment plants and population density. Considers development adjacent to existing systems as well as leapfrog subdivisions.

09-005 Federal Water Pollution Control Administration. Division of Construction Grants. Sewer and Sewage Treatment Plant Construction Cost Index: Construction Cost Trends, Municipal Waste Treatment Works and Municipal Sewers. Washington, D.C.: U.S. GPO; 1967.

Cost data for sewer and sewage treatment construction adjusted for national estimation purposes; contains individual region data. Out of date; current estimates offered in Engineering News Record.

09-006 Grove, William R. Economies of Scale in the Provision of Urban Public Services. (Master's Thesis), Massachusetts Institute of Technology; September 1967.

Overall review and analysis of costs/benefits of providing different public services at different densities or urban scales; discusses most aspects of public service including utilities, roads, police, fire protection; contains considerable significant cost and statistical data.

09-008 Kain, John F. Urban Form and the Costs of Urban Services. Cambridge, Massachusetts: Harvard University; 1967.

Discusses in depth the pros and cons of public service costs at different densities; presents the cases for "higher densities" and "large-lot zoning"; critically examines many prior studies including the Wheaton-Schussheim 1955 study.

09-009 Lovelace, Eldridge H. "Control of Urban Expansion: The Lincoln, Nebraska Experience". Journal of the American Institute of Planners, vol. 31:4 (November 1965), pp. 348-351.

Limiting growth by limiting sewerage service to area watershed is suggested as a means of shaping the pattern of residential expansion.

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Reference Number

CODE 09: SANITARY SEWERAGE (continued)

09-010 Lowry & Associates. Waste Water Disposal & Reclamation for the County of Orange, California. 1966-2000. Santa Ana, California: Lowry & Associates and Engineering Science, Inc.; 1966.

Alternative plans for the construction of sewer systems and treatment facilities to meet anticipated growth in Orange County, California. Presents cost estimates for alternative schemes; offers comprehensive evaluations.

09-012 Newville, Jack. New Engineering Concepts in Community Development. Washington, D.C.: Urban Land Institute; 1967.

Summarizes some of the new techniques being explored in design of residential areas; emphasizes engineering and site planning details; drainage, sewerage, road design; breakdown of cost factors in lot development.

09-013 Robert Snow Means Company, Inc. Building Construction Cost Data: 1973. Duxbury, Massachusetts: Robert Snow Means Company, Inc.; 1973.

Highly detailed analysis of material and installation costs for elements of building construction; includes costs of overhead, equipment, earthwork, site improvements, carpentry, metalwork, insulation, roofing, etc. Estimates of total cost, using median figures from 7500 projects for apartments, fire stations, garages, gymnasiums, hospitals, clinics, police stations, schools, retail stores, etc. Includes city cost indices.

09-015 Seelye, Elwyn E. Data Book for Civil Engineers: Volume One--Design. New York, New York: John Wiley and Sons, Inc.; 1968.

Standards used by civil engineers; includes data on structures, water supply, drainage, soils, roads and sanitation.

09-016 Seelye, Elwyn E. Data Book for Civil Engineers: Volume Two--Specifications and Costs. New York, New York: John Wiley and Sons, Inc.; 1957.

Standards and cost estimates used by civil engineers; includes building costs, utilities, water and sewerage, highways and streets.

09-017 Sternlieb, George. "Evaluation of Municipal Services" in Housing Development and Municipal Costs. Section III. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University; Spring 1973.

Deals with satisfaction with municipal services by housing type and other variables.

09-019 U.S. Department of the Interior, Federal Water Pollution Control Administration. The Cost of Clean Water and Its Economic Impact. Washington, D.C.: U.S. Department of the Interior, Federal Water Pollution Control Administration; 1969.

Report on national requirements, cost and economic impact on local governments in attaining nation's clean water goals. Gives costs of sewage treatment plant construction and operation.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 09: SANITARY SEWERAGE (continued)

09-020 U.S. Department of Interior, Federal Water Quality Administration. Municipal Waste Facilities in the United States-Statistical Summary 1968 Inventory. Washington, D.C.: U.S. GPO; 1970.

Contains statistical data on municipal sewage correction, treatment and disposal facilities. Data are recorded on size of community and by type of treatment.

09-021 U.S. Environmental Protection Agency. Cost to the Consumer for Collection and Treatment of Wastewater. Washington, D.C.: U.S. GPO; July 1970.

Cost data and formulae for interpolation of sewerage cost to consumer for different size and type of facility.

09-022 U.S. Environmental Protection Agency. Estimating Costs and Manpower Requirements for Conventional Wastewater Treatment Facilities. Washington, D.C.: U.S. GPO; October 1971.

Technical manual of construction, financing and maintenance costs for sewage treatment facilities from 1 to 100 million gallon per day capacity.

09-026 Alan M. Voorhees and Associates, Inc. Sewer System Cost Estimation Model. Baltimore, Maryland: Baltimore Regional Planning Council; April 1969. (Available NTIS 183 981.)

Detailed methodology for computing sewer system costs at a large scale; analytic model described.

09-027 U.S. Environmental Protection Agency. A Study of Selected Economic and Environmental Aspects of Individual Home Wastewater Treatment Systems. McLean, Virginia: Mitre Corporation; March 1972.

Report evaluates the potential effectiveness of individual home waste treatment systems and estimates the cost implications of increased use of individual systems. Reviews of previous research into septic tank system failures are summarized. Economic factors which can govern the choice between individual and collective systems are reviewed. The results of several economic analyses of the problem are discussed.

09-028 Madison-Madison International, Architects, Engineers, Planners. Adequacy and Cost Analysis of New Community Infrastructures. Washington, D.C.: Madison-Madison International; 1973.

System design requirements and capital cost estimation for sanitary sewerage infrastructure, water supply, and road construction. Also includes estimates of in-tract site development costs.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 10: STORM SEWERAGE
Classification: Primary

10-001 American Public Works Association. Urban Drainage Practices, Procedures and Needs. Chicago, Illinois: APWA Urban Drainage Committee; 1965.

Contains information on land use regulations (by community size in percentages); design of drainage improvements; standards for design of drainage improvements, administrative practices and inspection and supervisory practices in 672 communities.

10-003 U.S. Environmental Protection Agency, Water Quality Office. Urban Runoff Characteristics. Prepared by the University of Cincinnati, Department of Civil Engineering. Washington, D.C.: U.S. GPO; 1970.

Offers two models for estimating quantity of storm water runoff and its resulting pollutants.

10-004 U.S. Environmental Protection Agency, Office of Research and Monitoring. Storm Sewer Design - An Evaluation of The RRL Method. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; October 1972.

Provides catalog of actual applications on ten urban basins in the U.S. of the British Road Research Laboratory method for the design or redesign of storm drainage systems. Because the RRL method considers runoff from paved areas only, a secondary objective was to evaluate the influence of grassed areas runoff from typical urban watersheds.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 11: WATER SUPPLY
Classification: Primary

11-001 American Public Works Association and The Engineering Foundation. Proceedings: Conference on Engineering Utility Tunnels in Urban Areas. Chicago, Illinois: American Public Works Association; February 1972.

Gives alternative method of dealing with utility facilities along with conclusions and recommendations. Problems such as ownership, financing, requirements of each utility system and engineering design standards are developed. Potential application of utility tunnels with reference to new towns also discussed.

11-002 Andrews, Richard A. and Martha R. Hammond. Characteristics of Household Water Consumption in Three New Hampshire Communities. Durham, N. Hampshire. Water Resources Research Center, University of N. H.; December 1970.

Deals with quantity of water used in households; causes for variation in quantities used; factors affecting household water consumption and annual household expenditures for water in three New Hampshire counties.

11-005 Gruen, Gruen & Associates. The Impacts of Growth - An Analytical Framework and Fiscal Example. Berkeley, California: The California Better Housing Foundation, Inc.; 1972.

A complete impact analysis with special reference to water pollution, water supply, and schools; analytical framework is presented that is capable of providing a decision-making base for new policy alternatives. Deals with alternative development patterns.

11-008 Hardenbergh, W. A. and Edward B. Rodie. Water Supply and Waste Disposal. Scranton, Pennsylvania: International Textbook Company; 1960.

Engineering text for use in estimating water demand, sewage and storm runoff volumes and designing systems to meet these demands. Includes consideration of treatment systems design.

11-009 Hirshleifer, Jack et. al. Water Supply. Chicago, Illinois: University of Chicago Press; 1960.

A study of water supply discussing its problems, resources; economics of utilization of existing water supplies; municipal water rates; technological features and costs of alternative supplies of water; case studies of New York and California along with conclusions and implications.

11-010 Hittman Associates, Incorporated. Price, Demand, Cost, and Revenue in Urban Water Utilities. Washington, D. C.: U. S. Department of Commerce (NTIS); September 1970.

Discusses the Role of rate making policy in municipal water utilities; gives an economic model of a municipal water utility and implications for improved policies.

11-014 Linaweaver, F. P., Jr. et. al. A Study of Residential Water Use. Baltimore, Maryland: Department of Environmental Engineering Science; 1967.

Report of study conducted by Johns Hopkins University with 16 water utilities to determine all major factors influencing water use, including climate, economic level of users and types of pricing systems, so that adequate design of modern central water distribution systems can be estimated.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 11: WATER SUPPLY (continued)

11-018 Savini, John and J. C. Kammerer. Urban Growth and the Water Regimen. Washington, D.C.: U.S. GPO; 1961.

Basic outline study of hydrologic impacts of development; sections deal with water demand and supply; ground-water levels; pollution from sewage, storm water and erosion; some statistical data.

11-025 U.S. Department of Health, Education and Welfare, Public Health Service. Community Water Supply Study: Analysis of National Survey Findings. Washington, D.C.: U.S. Department of HEW, Public Health Service; July 1970.

Study gives assessment of drinking water quality, water supply systems and surveillance programs in urban and suburban areas.

11-026 Urban Systems Research and Engineering, Inc. The Relationship Between Housing and Water Resources Planning and Management. Washington, D.C.: U.S. Office of Water Resources Research; 1972.

Investigates the relationship between housing development and water resources planning and management, including sewerage and water supply. New techniques for predicting cost of installing utility networks on housing sites and for predicting the effects of housing density on water consumption are studied.

11-027 VTN Engineers, Architects, Planners. Technical Study for New Town Development for Rancho San Diego - Utilities. San Diego, California: VTN Engineers, Architects, Planners; 1972.

An analysis of utilities service planned for Rancho San Diego, a new community development. Objective was to evaluate all feasible alternative utility service systems and to provide preliminary engineering analyses and recommendations for the best suited systems to be used in the community.

11-029 Water Resources Center. The Christina Basin: The Protection of Water Resources As a Basis for Planning in Developing Areas. Newark, Delaware: Delaware University; April 1972.

Example of how features of soil, topography and vegetation can be classified for use in specifying measures needed to prevent damage to soil and water. Defines effects of development and has identified measures needed to prevent undesirable effects. Determines costs and where they should be assigned. Shows virtually any land can be developed without intolerable damage to oil and water when corrective measures are applied.

11-030 Wiedeman and Singleton Engineers. Water, Sewerage and Storm Drainage. Atlanta, Georgia: Wiedeman and Singleton Engineers; 1972. Prepared for Shenandoah New Community.

Capital and operating cost estimates for a planned new community's sewer, storm drainage, and water systems.

11-032 Campbell, Michael D., and Jay H. Lehr. Water Well Technology. New York, New York: McGraw-Hill Book Company; 1973.

Technical engineering analysis of system needs for obtaining ground water for public use. Illustrates costs of domestic and municipal well water.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 12: UTILITIES/GAS AND ELECTRIC
Classification: Primary

12-002 Ayres, Robert U. et. al. An Integrated Utility System Concept. Washington, D.C.: International Research and Technology Corp.; 1970.

Four subsystems (energy, water purification and re-circulation, refuse and sewage disposal and fire protection) are analyzed based on the use of new technology to replace the conventional utility systems. Offers data on power consumption and costs.

12-003 Bestor, George C. Buried Cables: A Survey of Buried Electric Distribution for Residential Land Development. Washington, D.C.: Urban Land Institute Technical Bulletin No. 48; 1964.

Discussion of reasons for buried power lines entailing overhead, benefits, burial practices and cost comparisons.

12-008 Federal Power Commission. The 1970 National Power Survey, Federal Power Commission, Part I. Washington, D.C.: U.S. GPO; December 1971.

Gives information on the structure of the electric power industry - the projected growth in the use of electric power; fossil-fueled steam electric generation; nuclear power; disposal of waste heat from steam electric plants; air pollution, etc. Offers data on the costs of supplying power to consumers.

12-012 Federal Power Commission. Typical Electric Bills. Washington, D.C.: U.S. GPO; December 1971.

Provides comprehensive coverage of the cost to consumers for representative amounts of electricity used per month for residential, commercial and industrial service in all sections of the nation. Bills for residential electric service are reported for five different consumption levels in all communities with populations of 2,500 or more.

12-015 Wallace, Richard L. and Paul E. Junk. "Economic Inefficiency of Small Municipal Electric Generating Systems". Land Economics, vol. 46:1 (February 1970), pp. 98-104.

Discusses economy of purchase of power by small municipalities from larger power systems. Reasons that many municipal systems continue to invest in inefficient generating equipment when lower cost power in terms of resources is available.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 13: TRANSPORTATION
Classification: Primary

13-002 Abend, Norman A. "Transportation Inputs in New Town Planning". Traffic Quarterly (April 1969), pp. 243-261.

A general discussion on the concept of New Towns and their history, emphasizing the relationship between land use and transportation planning inputs during the development period.

13-004 American Association of State Highway Officials. Geometric Design Guide for Local Roads and Streets, Part I: Rural. Washington, D. C.: AASHO; 1970.

Design guide for collector rural roads and streets and local rural roads and streets. Includes factors such as: design traffic volumes, design speed, grading, alignment, width, clearance, slopes, intersection design and erosion control.

13-007 American Public Works Association. A Survey of Urban Arterial Design Standards. Chicago, Illinois: American Public Works Association; 1969.

Study investigates the identification of standards and practices used in geometric design of major urban streets, determination of reasons for their use, and an evaluation of their impact on traffic operation and safety.

13-011 Ball, E. M. "Travel Characteristics of Two San Diego Subdivision Developments". Highway Research Record No. 203. Washington, D. C.: Highway Research Board; 1958.

Origin/destination study of two San Diego subdivision developments in effort to develop relationships between land use and traffic generation and to study orientation of generated traffic. Data on trip generation.

13-016 Bellomo, Salvatore J. and Edward Edgerley, Jr. "Ways to Reduce Air Pollution Through Planning Design and Operations". Highway Research Record No. 356. Washington, D. C.: Highway Research Board; 1971; pp. 139-157.

Reductions are in addition to those obtained by legislative air pollution controls on vehicles and stationary source emissions; discusses air pollution-components; stimulates work travel and air pollution for hypothetical city along with individual case studies; gives pollution levels for alternative transportation and land use plans.

13-017 Bendix Corp. Columbia Transit Program: Phase 1 Final Report Concept Formulation. Ann Arbor, Michigan: Bendix Corp.; 1970.

Deals with concept formulation, preliminary design, prototype evaluation, and staged installation of public transit system for planned new community.

13-020 Black, Alan. "Optimizing Density of Development with Respect to Transportation Cost". Highway Research Record No. 207. Washington, D. C.: Highway Research Board; 1967, pp. 22-31.

Influence of the density of vehicle trip ends on highway transportation costs was investigated; specific objective was to minimize total transportation cost per vehicle trip.

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Reference Number

CODE 13: TRANSPORTATION (continued)

13-021 Boston Transportation Planning Review. Harbor Crossing: Summary. Boston, Massachusetts: Boston Transportation Planning Review; September 1972.

Describes impact of alternatives for the Third Harbor Crossing with respect to time savings, accidents, air and noise pollution, capital costs, etc.

13-029 Deen, Thomas B. and Donald H. James. "Relative Costs of Bus and Rail Transit Systems". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 33-53.

Analyzes various methods suggested for operating busway systems to compare rail costs. Separate operating pattern conclusions were tested for their sensitivity to determine effect of line length, passenger traffic patterns, feeder bus route length, station spacing and other variables.

13-030 Development Research Associates. Public Transportation in the Chicago Metropolitan Region: A Benefit Statement. Chicago, Illinois: Governor's Transportation Task Force; January 1973.

Analyzes the need for new mass transit facilities in the Chicago metropolitan area, with special emphasis on suburban needs. Calculates annual regional travel benefits and infrastructure cost savings resulting from use of mass transit as opposed to private automobiles. Suggests possible future regional transit systems. Offers useful information on the time and cost expenditures of a typical suburban-resident commuting by auto and rail.

13-033 Evans, Henry K. "Transportation Planning Criteria for New Towns". Highway Research Record No. 97. Washington, D. C.: Highway Research Board; 1965, pp. 30-51.

Criteria for estimating traffic volume and roadway capacity in new towns. Quantifies likely trip origins and destinations. Methods of evaluating alternative transportation plans, using the Mountain Park and Irvine Ranch developments as case studies.

13-036 Frey, J. C. et. al. Planned versus Unregulated Development in a Suburban Community: A Case Study, University Park, Pennsylvania: The Pennsylvania State University, Department of Agricultural Economics and Rural Sociology. Prepared in cooperation with U. S. Department of Commerce; March 1960.

Compares patterns of highway development and land use arising under conditions of unregulated and rapid growth in a representative community, suggests more orderly and efficient patterns that could have evolved had adequate planning and effective control been initiated and carried out. Briefly describes some programs and policies that can be utilized by local government to cope better with rapid suburban growth related to highway development.

13-040 Goldberg, Victor P. and Karl M. Kriesel, Urban Form and the Allocation of Land to Streets. Davis, California: Institute of Government Affairs Research Reports; October 1971.

Concerned with costs of urban form associated with streets. Two elements are considered -- net desntiy of development and the amount of land skipped over in the process of development (leapfrogging). Contends that lower density and greater scatter of development will increase both public and private investment.

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Reference Number

CODE 13: TRANSPORTATION (continued)

13-042 Highway Research Board. Procedures for Estimating Highway User Costs, Air Pollution, and Noise Effects. Washington, D. C.: Highway Research Board, NCHRP Report No. 133; 1972.

A manual of procedures for estimating road user costs, including cost of travel time, and air and noise pollution associated with highway facilities under different levels of traffic. Contains detailed worksheets as well as outline and discussion of assumptions used in making cost estimates.

13-052 Markovitz, Joni et. al. Transportation Implications of Economic Cluster Development. New York: Tri-State Regional Planning Commission, Interim Technical Report; 1971.

Deals with transportation implications of clustering non-residential land uses ranging in densities; determines trip attraction of various land use densities; modal split of varying concentrations and market areas of each non-residential land use.

13-053 Meyer, J. R. et. al. The Urban Transportation Problem. Cambridge, Massachusetts: Harvard University Press; 1965.

Discusses the effect of changes in urban growth patterns on transportation systems, with some emphasis on the relationship of housing locational change, trip generation, and modal choice. Costs of various line-haul systems; consideration of new innovations.

13-056 Morris, Robert L. "Transportation Planning for New Towns". Highway Research Record No. 293. Washington, D. C.: Highway Research Board; 1969, pp. 104-116.

Variables studied with relation to transportation planning of new towns include employment opportunities juxtaposed with residential development, site planning concepts, street standards related to optimizing construction costs and minimizing negative effects of noise; public transit operation; and parking facilities.

13-060 Real Estate Research Corporation. Financial Analysis Models for New Communities. Chicago, Illinois: Real Estate Research Corporation; 1972.

Studies undertaken by Real Estate Research Corporation for new community developers pursuant to application for HUD Title VII loan guarantees. Model utilizes cost estimates for streets, sanitary and storm sewers, water supply systems, and open space to be provided by the developer as elements in analyzing the likelihood of financial success. Prepared for the Amherst, Harbison, and Shenandoah new communities.

13-061 Regional Economic Development Institute, Inc. Transportation Requirements and Effects of New Communities - Study in New Systems of Urban Transportation. Pittsburgh, Pennsylvania. Distributed by NTIS, Springfield, Virginia; 1968.

Discusses the effect on transportation demand of new town land use planning concepts. Special emphasis on density alternatives and trip generation levels. Using Columbia, Maryland as an example, analyzes the potential for and cost of diverting typical suburban reliance on the automobile to mass transit systems.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 13: TRANSPORTATION (continued)

13-067 Southern California Rapid Transit District. Final Report. Los Angeles: Southern California Rapid Transit District; 1968.

Plan for rapid transit system for Los Angeles metropolitan area, including engineering and design studies. Includes benefit-cost analysis; considers value of travel time, parking, second car operations, accident reduction, costs of highway congestion, reduction in air and noise pollution.

13-069 Stevens, Robert D. and George J. Bacalis. "Transportation for a New Town". Highway Research Record No. 367. Washington, D.C.: Highway Research Board; 1971, pp. 9-16.

Evaluation of alternative transit configurations for Columbia, Maryland based on service provided, riders attracted, capital costs, operating costs and financial feasibility.

13-072 Tri-State Transportation Commission. Transit Supporting Densities - Interim Technical Report No. 4195-4451. New York, New York: Tri-State Transportation Commission; July 1970.

Objective is to establish the influence of density of transit patronage and determine quantitative relationships which may apply. Additional influencing factors of income and age are explored.

13-077 U.S. Department of Transportation, Office of Highway Operations' Public Trends for Federal Aid Highway Construction. Washington, D.C.: U.S. DOT, Office of Highway Operations, Construction and Maintenance Division; 1972.

Gives index composed of six indicator items: common excavation, to indicate price trend for all roadway excavation; portland cement pavement, to indicate the price trend for all surfacing types; and reinforcing steet, structural steet, and structural concrete, to indicate price trend for structures.

13-089 Barton Aschman Associates, Inc. Shenandoah New Community: Roadway, Sidewalk, Lighting and Storm Drainage Costs. Washington, D.C.: Barton Aschman Associates, Inc.; 1971.

Costs of roadways and storm drainage infrastructure for the Shenandoah new community near Atlanta.

13-090 Gulf Union Corporation. Engineering Criteria and Construction Cost Development: Nouville New Community. Baton Rouge, Louisiana: Gulf Union Corporation; 1973.

Engineering standard and cost estimation for roads and infrastructure for the Nouville new community near Baton Rouge.

13-091 Witheford, David K. and George E. Kanaan. Zoning, Parking, and Traffic. Saugatuck, Connecticut: Eno Foundation for Transportation; 1972.

Attempts to establish benchmark of current practice in zoning, with special attention to the traffic aspects of off-street parking and loading regulations. Designed to offer benefits to both traffic engineers and planners through survey practices.

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Reference Number

CODE 13: TRANSPORTATION (continued)

13-092 Highway Research Board. Highway Capacity Manual, Special Report 87. Washington, D. C.: Highway Research Board; 1965.

Summarizes design and travel volume factors that determine street and highway carrying capacity. Reference is made to variety of components of roadways, modes of transportation, and traffic characteristics.

13-093 Institute of Traffic Engineers. Traffic Engineering Handbook. Washington, D. C.: Institute of Traffic Engineers; 1965.

Useful digest of information on traffic planning and engineering; a basic source of data on roadway design and capacity, traffic volume, trip generation and trip length, parking, and traffic accidents.

13-094 Highway Research Board. Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants, Report 24. Washington, D. C.: Highway Research Board; 1966.

Study of airports, shopping centers, and industrial areas in cities of more than 50,000 population. Presents data on use of different travel modes, trip purposes, times of day, and trip rates. Contains annotated bibliography of trip generation studies.

13-095 Institute of Traffic Engineers. Trip Generation. Los Angeles, California: Institute of Traffic Engineers, Western Section; 1967.

Contains analysis of trip generation factors for single- and multi-family residential areas and regional shopping centers. Presents data useful for design of street and highway capacity, both for daily volumes and hourly peak flows.

13-096 Institute of Traffic Engineers. "Trip Generation Study of Selected Commercial and Residential Developments". Traffic Engineering (March 1970), pp. 40-47.

Contains data on peak hourly traffic flows for a variety of commercial and residential uses, including restaurants, food stores, service stations, single-family and multi-family subdivisions.

13-097 Institute of Traffic Engineers. "Trip Generation at Shopping Centers". Traffic Engineering (September 1969), pp. 32-35.

Presents analysis of peak hourly and average daily traffic volumes for five commercial centers.

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Reference Number

CODE 14: ENERGY USE
Classification: Primary

14-007 Grimmer, D. P. and K. Luszczynski. "Lost Power". Environment, vol. 14:3 (April 1972), pp. 14-22.

A thorough analysis of total U.S. power consumption for different purposes with special emphasis on transportation uses. Some background data on energy resources.

14-008 Hittman Associates. Residential Energy Consumption: Multi-Family Housing Data Acquisition. Columbia, Maryland: Hittman Associates; 1972.

Analysis of energy needs for multi-family housing: case studies in Washington area.

14-009 Hittman Associates, Inc. Residential Energy Consumption. Phase I Report. Columbia, Maryland: Hittman Associates; 1972. Available NTIS.

Analysis of energy needs for typical single family house: case study of Washington area.

14-010 National Mineral Wood Insulation Association, Inc. Impact of Improved Thermal Performance in Conserving Energy. New York, New York: National Mineral Wool Insulation Association, Inc.; April 1972.

Gives comparison of the amounts of energy consumed for heating and cooling by all residential living units as thermally treated by today's standards and with improved thermal treatment. Units studied include single family homes, mobile homes, multi-family structures, both low and high rise.

14-011 Odum, Howard T. Environment, Power and Society. New York, New York: Wiley-Interscience; 1971.

Brief and relatively non-technical overview of energy eco-systems, both natural and man-made, with some specific numerical data on energy consumption. Emphasis is on global scale of energy use and on the problems associated with excessive use of resources.

14-016 Stein, Richard G. "Building Energy Use". Environment, vol. 14:8 (October 1972), pp. 16-29.

Discussion of energy consumed by buildings during construction, use and demolition states. Cites case studies of revisions of building designs that affect energy-use reductions.

14-020 Council on Environmental Quality. Energy and the Environment: Electric Power. Washington, D.C.: U.S. GPO; 1973.

Presents thorough discussion of energy consumption, alternative means of energy production, and environmental impacts of alternatives. Also discusses relative availability of energy sources and implications for future growth.

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Reference Number

CODE 15: WATER POLLUTION
Classification: Primary

15-003 Ayres, Leslie and Ivars Gutmanis. A Model for Strategic Allocation of Water Pollution Abatement Funds. Washington, D. C.: The Brookings Institution; 1971.

An evaluation of water pollution control alternatives under different conditions; contains estimates of pollution contributed by different sources including domestic sewage, agriculture and industry.

15-010 Colorado Legislative Council. Water Pollution in Colorado. Part II. Denver, Colorado: Colorado Legislative Council; 1966.

Brief report on conditions and progress in 1966; draft bill for water pollution control; cost and statistical data by municipality.

15-014 Environmental Science and Technology. "Reusing Storm Runoff". Environmental Science and Technology, vol. 2:11 (November 1968), pp. 1001-1005.

Interesting description of a prototypical storm runoff control system to be tested in Columbia, Maryland.

15-015 Grava, Sigurd. Urban Planning Aspects of Water Pollution Control. New York, New York: Columbia University Press; 1969.

Fairly non-technical general descriptive textbook; reviews causes of water pollution; describes basic alternative sewage treatment systems; re-cycling; administration and financial aspects; discusses influence of water treatment on planning and of alternatives for suburbia with some general data.

15-019 Interstate Commission on the Potomac River Basin. Land Runoff -- A Factor in Potomac Basin Pollution. Harrisburg, Virginia: Interstate Commission on the Potomac River Basin; July 1967.

Brief and not too technical study of water pollution from agriculture in the Potomac River Basin; detailed data on nutrient constituents of animal wastes as compared to human wastes; water sampling data included.

15-027 Morrill, George B. III, and Larry G. Toler. "Effect of Septic-Tank Wastes on Quality of Water, Ipswich and Shawsheen River Basins, Massachusetts". Jour. Research U.S. Geol. Survey, Vol. 1:1 (January-February 1973), pp. 117-120.

Brief description of study showing correlation between housing density and dissolved solids concentration in streams where septic tanks are prevalent.

15-041 State of New Jersey. County and Municipal Government Study Commission. Water Quality Management: New Jersey's Vanishing Options. Trenton, New Jersey: County and Municipal Government Study Commission; March 1973.

Continues the examination of local government's structure and functions in the state. Notes that in the water management function the state plays a preeminent role and that its responsibilities are likely to increase in the future. Recommendations are addressed to remedial actions at all levels of government and begin with the overhaul of the current statutory base.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 15: WATER POLLUTION (continued)

15-046 U.S. Department of the Interior, Federal Water Pollution Control Administration. The Cost of Clean Water: Economic Impact on Affected Units of Government. Washington, D.C.: U.S. Department of the Interior, Federal Water Pollution Control Administration; 1968.

A national review of the need for and cost of sewage treatment, broken down by state; no detailed cost data for smaller treatment plants or additions to existing plants.

15-048 U.S. Department of Interior, Federal Water Quality Administration. A Preliminary Analysis of the Effects of Urbanization on Water Quality. Washington, D.C.: U.S. GPO; 1970.

Study of the effect of land uses on water quality in the Philadelphia metropolitan area.

15-049 U.S. Department of Interior, Federal Water Quality Control Administration. Storm Water Pollution from Urban Land Activity. Washington, D.C.: U.S. Department of the Interior, Federal Water Quality Control Administration; July 1970.

Thorough analysis of storm water pollution in various types of urbanized land; statistical data from case studies in the Tulsa, Oklahoma area; correlational conclusions; photographs of study sites.

15-050 U.S. Department of the Interior, Federal Water Quality Control Administration. Water Pollution Aspects of Urban Runoff. Washington, D.C.: U.S. Department of the Interior, Federal Water Quality Control Administration; January 1969.

Study of the polluting constituents of urban runoff; detailed analysis of street sweepings is included; brief discussion of water quality measurement; brief discussion of prevention and treatment proposals.

15-054 Vice, R. B. et. al. Sediment Movement in an Area of Suburban Highway Construction, Scott Run Basin, Fairfax County, Virginia, 1961-64. Washington, D.C.: U.S. GPO, Geological Survey Water-Supply Paper 1591-E; 1969.

Case study of one river basin in an area undergoing suburban and highway development.

15-060 U. S. Environmental Protection Agency. A Primer on Wastewater Treatment. Washington, D.C. U.S. GPO; 1971.

General introduction to water pollution problems and methods of abatement.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 16: NOISE POLLUTION
Classification: Primary

16-002 Bragdon, Clifford R. "Noise Control in Urban Planning". Journal of the Urban Planning and Development Division, vol. 99:UP1 (March 1973), pp. 15-23.

Impact of noise on health is described and method for appraising implicated health effects of noise is shown. Noise problems associated with both ground and air transportation systems are presented and environmental solutions are necessary to central noise at the source, path and object. Role of urban planning in mitigating noise impact is assessed.

16-003 Bragdon, Clifford R. Noise Pollution. Philadelphia, Pennsylvania: University of Pennsylvania Press; 1971.

General overview of noise pollution problems; non-technical in emphasis; contains descriptions and some quantitative data on various noise sources.

16-004 Branch, Melville C. et. al. Outdoor Noise and the Metropolitan Environment: Case Study of Los Angeles with Special Reference to Aircraft. Los Angeles, California Department of City Planning; 1970.

Brief analysis of noise and how to control it through planning and technology; discusses ways to plan residential areas to minimize noise problems.

16-006 Cohen, Alexander. "Location-Design Control of Transportation Noise". Journal of the Urban Planning and Development Division. Proceedings of the American Society of Civil Engineers, vol. 93:UP4 (December 1967), pp. 63-86.

Procedure to determine acceptable noise levels; noise control requirements and benefits; corrective treatments are assessed.

16-008 H. M. Government Committee on the Problem of Noise. Noise: Final Report. H. M. Stationery Office; 1964. (Cmnd. 2056)

Thorough study and analysis of the problem of noise in all its aspects. Includes discussionof basic principles, measuring methods, perceived "Annoyance thresholds", measured data for various noise sources, recommendations for action and legislation.

16-010 U. S. Department of Housing and Urban Development. Noise Abatement and Control: Departmental Policy, Implementation Responsibilities, and Standards. Washington, D. C.: U. S. Dept. HUD; 1971.

Outlines HUD standards for indoor as well as external noise in HUD assisted housing.

16-011 U. S. Department of Housing and Urban Development. Noise Assessment Guidelines. Washington, D. C.: Department of Housing and Urban Development. U. S. GPO; 1971.

Summary of the technical report; this handbook is used to assess noise impact of airports, roads, and railroads by non-technicians.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 16: NOISE POLLUTION (continued)

16-012 U. S. Department of Housing and Urban Development. Noise Assessment Guidelines - Technical Background. Washington, D. C.: Department of Housing and Urban Development; 1972.

Technical Report forming basis for HUD noise assessment and abatement policies; includes assessment procedures for sites; description of foreign standards.

16-013 U. S. Environmental Protection Agency. Community Noise. Washington, D. C.: U. S. Environmental Protection Agency. U. S. GPO; 1971.

Back-up technical report to EPA "Report to the President and Congress on Noise"; contains case studies of 16 varied residential situations plus rural "control" situations.

16-014 U. S. Environmental Protection Agency. The Economic Impact of Noise. Washington, D. C.: U. S. EPA (PB-206726) (December 31, 1971).

Technical report of costs of correcting noise impact from airports; trucks, cars, etc.; appliances; human noise (talking, etc.) and of alternative means for correction.

16-016 U. S. Environmental Protection Agency. Report to the President and Congress on Noise. Washington, D. C.: U. S. GPO; February 1972.

Reviews basic principles of noise; causes and effects; quantified data for various situations; probable future trends and control potentials; community reactions. Concentrates data on noise sources rather than on noise insulation or isolation.

16-018 Lave, Samuel R. Freeway and Highway Traffic Noise: An Information Base for Urban Development Decisions. Los Angeles, California: University of California, Urban Mass Transportation Study, School of Architecture and Urban Planning; August 1971. Available NTIS, Springfield, Virginia.

Purpose of study was to determine impact of major noise sources on communities to establish current state of noise levels and social costs of noise. Attempts to establish compatibility of land use along freeway routes and other major arteries.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 17: AIR POLLUTION
Classification: Primary

17-002 Berwanger, Sydney D. and George V. Wickstrom. Estimating Auto Emissions of Alternative Transportation Systems. Washington, D. C.: Department of Transportation Planning, Metropolitan Washington Council of Governments; April 1972.

Describes a simulation model for estimating auto emissions under different transportation systems; Washington, D. C. used as case study; method applicable to other situations.

17-003 Branch, Melville C. Air Pollution and City Planning. Los Angeles, California: Environmental Science and Engineering, University of California, Los Angeles; 1972.

Discussion of air pollution problems related to low-density automobile oriented community in critical climatic situation (Los Angeles).

17-004 Department of Transportation. Special Area Analysis - Section B. Air Quality Analysis. (unpublished) Prepared by the Federal Highway Administration, Urban Mass Transportation Administration, Federal Aviation Administration and the Office of Assistant Secretary for Policy, Plans and International Affairs; March 1973.

Gives latest emission standards for pollutants; outlines methods of air quality analysis.

17-008 Hagevik, George. The Relationship of Land Use and Transportation Planning to Air Quality Management. New Brunswick, New Jersey: Rutgers University; May 1972.

An anthology of essays on land-use/transportation -- air quality relationship; includes discussion of governmental policy; regional land use planning; some detailed data for evaluating residential areas.

17-011 Maga, John A. "Vehicular Pollution Effects in Urban Development". Journal of the Urban Planning and Development Division, Vol. 93, No. UP4 (December 1967), pp. 231-241.

Concise review of pollution generated by vehicles with statistics for selected cities: pollution levels and vehicle number; recommendation to minimize problem.

17-015 Nourse, Hugh O. "The Effect of Air Pollution on House Values". Land Economics, vol. 43:2 (May 1967), pp. 181-189.

Description of case study of St. Louis neighborhood afflicted by appreciable air pollution nuisance; economic effects measured against control neighborhood unaffected by pollution.

17-020 Rydell, C. Peter and Gretchen Schwarz. "Air Pollution and Urban Form: A Review of Current Literature". Journal of the American Institute of Planners, vol. 34:2 (March 1968), pp. 115-119.

Overview of theory of air pollution and dispersal; indicates ways in which planning might alleviate the situation; bibliography.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 17: AIR POLLUTION (continued)

17-029 U.S. Environmental Protection Agency. The Economics of Clean Air, Annual Report to Congress. Washington, D.C.: U.S. GPO; March 1972.

Summary of air pollution sources; technology and costs of correcting deficiencies including costs to consumer of different heating systems.

17-030 Alan M. Voorhees and Associates, Inc. Air Quality Considerations in Transportation and Urban Planning: A Five-Year Program Guide. Washington, D.C.: Office of Air Programs and Office of Land Use Planning, Environmental Protection Agency; December 1970. Available NTIS.

Discusses relationship between land-use/transportation plans and air quality: concentrates on regional and broad-scale planning decisions.

17-031 Alan M. Voorhees and Associates, Inc. A Guide for Reducing Air Pollution Through Urban Planning. Washington, D.C.: Office of Air Programs, Environmental Protection Agency; December 1971.

Discusses relationship between land-use/transportation plans and air quality; concentrates on regional and broad-scale planning decisions.

17-036 Kaman Sciences Corporation. Land Use Planning for Air Quality in the Pikes Peak Area. Colorado Springs, Colorado: Kaman Sciences Corporation; August 1972.

Tries to determine, by a mathematical model, present air pollution, and to predict expected air pollution. Alternative land use and transportation patterns would then be modeled to determine the best locations of future air pollution sources to keep air pollution within acceptable limits.

17-037 U. S. Department of Health, Education, and Welfare. Calculating Future Carbon Monoxide Emissions and Concentrations from Urban Traffic Data. Washington, D.C.: National Air Pollution Control Administration; (undated).

Outlines a methodology for calculating emissions and concentrations of carbon monoxide from urban traffic; data from Washington, D.C. used as an example.

17-038 National Tuberculosis and Respiratory Disease Association. Air Pollution Primer. New York, New York: National Tuberculosis and Respiratory Disease Association; 1969.

A general introduction to air pollution, including sources of pollution, chemical properties of pollutants, and health and other effects.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 18: EROSION
Classification: Primary

18-002 Guy, H. P. and G. E. Ferguson. "Sediment in Small Reservoirs Due to Urbanization". Proceedings of The American Society of Civil Engineers (March 1962), pp. 27-37.

Describes case study of sedimentation problem in Virginia; contains valuable data on sediment quantity and causes.

18-003 Guy, Harold P. and George E. Ferguson. "Stream Sediment: an Environmental Problem". Journal of Soil and Water Conservation (November-December 1970), pp. 217-221.

Discusses sedimentation from building construction work; contains data on sediment quantity.

18-004 Muller, Robert A. "Water Balance Evaluation of Effects of Subdivisions on Water Yield in Middlesex County, New Jersey". Proceedings of the Association of American Geographers, 1969, pp. 121-126.

Suggests the effects of urbanization on run-off quantity.

18-005 Southeastern Wisconsin Regional Planning Commission. Soils Development Guide. Waukesha, Wisconsin: Southeastern Wisconsin Regional Planning Commission; August 1969.

Serves as groundwork for regional soil survey by outlining in detail technique required for soil survey. Provides large contribution due to analysis of what types of development should be undertaken or not undertaken on particular soil types. Examines advantages of soil survey for variety of land uses, including residential, recreation, schools, highways and streets, utilities, and sewage lines. Some consideration given to environmental effects of economic development.

18-006 U.S. Department of the Interior. "Sediment Problems in Urban Areas". Geological Survey Circular 601-E, Washington, D.C.: U.S. Department of the Interior; 1970.

Brief pamphlet documenting case histories and causes of sedimentation resulting from urbanization; some data on quantity; suggestions for solutions to the problem.

18-007 U.S. Department of the Interior, Federal Water Quality Administration. Urban Soil Erosion and Sediment Control. Prepared by the National Association of Counties Research Foundation. Washington, D.C.: U.S. GPO; 1970.

An introduction to problems resulting from sedimentation and erosion, with special emphasis on newly developing suburban areas. Discusses means of control and possible action programs including review of subdivision plans to determine adverse effects. Use of state, local, and federal financial assistance in prevention is discussed.

18-008 Keller, F. J. Effect of Urban Growth on Sediment Discharge - Northwest Branch Anacosta River Basin, Maryland. Washington, D.C.: U. S. Geological Research, U.S. GPO; 1962.

Suspended sediment discharges from urban growth areas are compared to rural areas.

18-009 U. S. Environmental Protection Agency. Guidelines for Erosion and Sediment Control: Planning and Implementation. Prepared by the State of Maryland Department of Water Resources. Washington, D.C.: U. S. GPO; 1972.

A study suggesting planning devices to prevent erosion and sedimentation based on experiences in Columbia, Maryland.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 19: TIME CONSUMPTION
Classification: Primary

19-001 Allouche, Jean F. "Approach to Probability Distribution of Value of Walking Time and Pedestrian Circulation Models". Highway Research Record No. 392. Washington, D. C.: Highway Research Board; 1972, pp. 121-133.

Proposes model of pedestrian behavior. Deals with how to determine probability distribution of value of walking time. Model applicable to various situations - parking location selection, utilization of short distance people movers, or evaluation of pedestrian circulation improvements.

19-002 Bellomo, Salvatore, J. et. al. Factors, Trends, and Guidelines Related to Trip Length. National Cooperative Highway Research Program Report 89. Washington, D. C.: Highway Research Board; 1970.

Analysis of changing nature of trip lengths within urban areas. Identifies fundamental factors about trip length and how factors differ by type of trip. Also studies historical factors which influence trip lengths within metropolitan areas. Data from Reading, Pa., Sioux City, Iowa and Detroit, Michigan.

19-003 Gronau, Reuben. "The Effect of Traveling Time on the Demand for Passenger Transportation". Journal of Political Economy, vol. 78:2 (March/April 1970), pp. 377-395.

Shows how price of trip varies with travelers income, purpose of trip, length and mode used. Crude estimates of prices that travelers assign to their time is given in concluding remarks.

19-005 Lisco, Thomas. The Value of Commuters' Travel Time - A Study in Urban Transportation. Chicago: The University of Chicago (a dissertation); June 1967.

Designed specifically to measure the value of the commuters travel time; a study of how much it is worth to commuters to save given amounts of time on a commuting trip.

19-007 Sawhill, Roy B. et. al. "Vehicle Characteristics of Fuel and Travel Time on Urban Arterials and Freeways". Highway Research Record No. 314. Washington, D. C.: Highway Research Board; 1970, pp. 41-60.

Evaluates impact urban freeways have on vehicle operating characteristics of travel time and fuel consumption.

19-010 Thomas, Thomas C. and Gordon I. Thompson. "Value of Time Saved by Trip Purpose". Highway Research Record No. 369. Washington, D. C.: Highway Research Board; 1971, pp. 104-117.

Values of travel time savings estimated for personal business trips, social-recreational trips and work trips. Time saved and income level of motorist found to be most significant variables in determining valuation of travel-time savings by motorist. Includes tables for estimating dollar values of travel-time savings.

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Reference Number

CODE 19: TIME CONSUMPTION (continued)

19-011 Alan M. Voorhees and Associates, Inc. Reston Transportation Study. McLean, Virginia: Alan M. Voorhees and Associates, Inc.; 1970.

Analysis of travel demand and modal choices for the Reston, Virginia new town. Patronage found to be extremely sensitive to walking time at the end of the transit trip, average transit travel speed as compared to auto speed, and time intervals when changing vehicles. Data collected for a variety of housing types and by household size. Suggests new transit and highway plans to increase transit ridership and alleviate auto congestion.

19-012 Watson, Peter L. "Problems Associated with Time and Cost Data Used in Travel Choice Modeling and Valuation of Time". Highway Research Record No. 369. Washington, D.C.: Highway Research Board; 1971, pp. 148-158.

Considers problems which arise from using two different kinds of data to develop a model to explain an individual's choice of travel mode (or route) in terms of a series of variables. Kinds of data differ in that one set is based on the perceptions of the traveler while the other is based on measured (or actual) data--time, distance, etc.

19-015 Highway Research Board. Factors and Trends in Trip Lengths, Report 48. Washington, D.C.: Highway Research Board; 1968.

Discussion of trip length in time and distance for home-based work, shopping, and social-recreation trips and for nonhome-based trips. Relates trip length to changes in population, employment, and density. Contains data for length of trips from a wide sample of metropolitan areas.

19-016 System Development Corporation. A Survey of Average Driving Patterns in Six Urban Areas of the United States: Summary Report. Santa Monica, California: System Development Corporation; 1971.

Presents analysis of patterns of private vehicle use in six metropolitan areas. Gives data on weekday and weekend trips, trip purpose, and time of day of trips.

19-017 U. S. Department of Transportation. Federal Highway Administration, Nationwide Personal Transportation Study. 7 reports. Washington, D.C.: U. S. Department of Transportation; 1973.

Considers automobile occupancy, vehicle miles traveled, seasonal trip variation, school-oriented trips, relationship of mass transit to shopping trips. Report No. 7 summarizes household travel by length, number and purpose of trips by income class and city size.

19-018 Walker, Kathryn E. and William H. Gauger. The Dollar Value of Household Work. Ithaca, New York: New York State College of Human Ecology, Cornell University; 1973.

Allocates time spent in household care and maintenance for husbands, wives and children. Attaches economic value to household labor.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 20: PUBLIC HEALTH AND SAFETY
Classification: Primary

20-001 Appleyard, Donald and Mark Lintell. "Environmental Quality of City Streets: The Residents' Viewpoints". Highway Research Record No. 356; 1971, pp. 69-84.

Describes streets design, traffic, population, environment, traffic hazards and noise along with other forms of pollution that affect satisfaction with living environments.

20-004 Cribbins, P. D. et. al. "Effects of Selected Roadway and Operational Characteristics on Accidents on Multilane Highways". Highway Research Record No. 188. Washington, D.C.: Highway Research Board; 1967, pp. 8-25.

Analysis to determine, by use of multiple regression technique, effects of selected roadway and operational characteristics on accidents on multilane highways. Field data on over 6000 accidents gathered from 92 sites evaluated.

20-005 Cribbins, P. S. et. al. "Median Openings on Divided Highways: Their Effect on Accident Rates and Level of Science". Highway Research Record No. 188. Washington, D.C.: Highway Research Board; 1967, pp. 140-157.

Studies effects of selected roadway characteristics on accident rate and level of service on multilane divided highways. Attempts to quantitatively determine optimum median open spacing on same kind of highways.

20-006 Drake, Gerard L. and Merwyn A. Kraft. "Motor Vehicle Accident Costs in the Washington Metropolitan Area". Highway Research Record No. 188. Washington, D.C.: Highway Research Board; 1967, pp. 127-139.

Analysis of motor vehicle accident costs in Washington Metropolitan area to aid in evaluation of national highway transportation system from standpoint of losses through traffic accidents.

20-007 Fee, Julie A. et. al. Interstate System Accident Research Study - I. Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration; October 197 . Available U.S. GPO.

Investigates safety record of Interstate Highway System as compared to conventional existing highways which it replaced. Compares accident, injury and fatality rates before and after interstate development. Access control found to have considerable impact on accident rate.

20-008 General Services Administration. Public Buildings Service - International Conference on Fire Safety in High-Rise Buildings. Washington, D.C.: U.S. GPO; May 1971.

Concentrates on fire safety problems and conditions common to high rise building of various uses and occupancies.

20-013 Newman, Oscar. Defensible Space: Crime Prevention Through Urban Design. New York, New York: The MacMillan Company; 1972.

Based on study of the forms of our residential areas and how they contribute to our victimization by criminals. It examines one aspect of how environment affects behavior.

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Reference Number

CODE 20: PUBLIC HEALTH AND SAFETY (continued)

20-015 Rolf Jensen and Associates. A Study of the Fire Problem in Residential High Rise Buildings. Northfield, Illinois: Rolf Jensen and Associates, Inc.; February 25, 1972.

Progress report detailing the findings of a statistical analysis and profile of fires in multi-family residential buildings with emphasis on high rise buildings.

20-018 Southern California Association. Handbook of Crime Prevention Bulletins - Crime Prevention Through Physical Planning. Los Angeles, California: Southern California Association of Governments; September 1971.

Gives information on planning and design of physical characteristics and a systematic approach to apply the information to specific projects.

20-020 National Safety Council. Accident Facts, 1971. Chicago, Illinois: National Safety Council; 1971.

Contains national summary of statistical data on work, motor-vehicle, home, farm, school, and public accidents, expressed on a per population basis.

20-021 U. S. Department of Transportation. Federal Highway Administration. Fatal and Injury Accident Rates on Federal-Aid and Other Highway Systems, 1970. Washington, D. C.: Federal Highway Administration; 1971.

Contains national and state summaries of statistical data for fatal and non-fatal highway accidents; listed by type of highway.

20-022 Arthur D. Little, Inc. Cost-Effectiveness in Traffic Safety. New York, New York: Frederick A. Praeger; 1968.

Discussion of direct and indirect costs of traffic accidents, as well as factors that affect rates of accidents.

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Reference Number

CODE 21: NEW TOWNS, PLANNED COMMUNITIES
Classification: Primary

21-001 Advisory Committee to the Department of Housing and Urban Development. Urban Growth and Land Development: The Land Conversion Process. Report of the Subcommittee on Land Use. Washington, D.C.: National Academy of Sciences; 1972.

The effects of rural to urban land conversion on land prices; the effects of planned versus sprawl development on infrastructure costs; needed responses and research.

21-008 Apartment Construction News. "Lane Use Ratios for Big P.U.D.'s". Apartment Construction News; August 1971.

Land uses outlined for eight major master planned new communities.

21-012 Associated Home Builders of the Greater Eastbay, Inc. The Planned Unit Development Handbook (revised). Berkeley, California: Associated Home Builders of the Greater Eastbay, Inc.; 1972.

Guide to planning, processing, and developing a planned unit development. Includes information from a variety of developments as well as a set of sample documents needed for processing PUD's through the FHA, State, and local regulatory agencies.

21-019 Burchell, Robert W. and James W. Hughes. Planned Unit Development-New Communities American Style. New Brunswick, New Jersey: Rutgers University; 1972.

The origins of the planned unit development concept - its derivation from zoning and subdivision controls; acceptance of the PUD technique; the development process; emerging policies. Estimates development and construction costs, occupancy costs, costs of municipal services for a PUD Comparison of unit costs between a townhouse PUD and a single family home subdivision.

21-024 Chapin, F. Stuart, Jr. and Shirley F. Weiss. (Eds.) Urban Growth Dynamics In a Regional Cluster of Cities. New York, New York: John Wiley and Sons, Inc.; 1962.

An analysis of political, economic and social factors causing increased urban growth in the Piedmont Crescent region of North and South Carolina. Of special interest is Chapin and Weiss' discussion of variables affecting the direction and pattern of future urbanization. Development in vacant fringe areas shown to be highly dependent on soil drainage characteristics, highway location, employment opportunities, and public services.

21-031 The Contractor. "Planned Unit Construction: A Benefit to the Contractor, the Consumer and the Environment". The Contractor (March 1972), p. 17.

A brief discussion of the cost advantage of planned unit development over typical suburban "sprawl" development with respect to land costs per dwelling unit and storm drainage and sewer systems installation.

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Reference Number

CODE 21: NEW TOWNS, PLANNED COMMUNITIES (continued)

21-032 Crane, David A. and Associates. Lysander New Community: Final Planning Report. New York, New York: New York State Urban Development Corporation; 1971.

The master plan for Lysander New Community, to be located twelve miles northwest of Syracuse, New York. Useful information on school impact and traffic volumes to be generated as a result of development.

21-034 De Chiara, Joseph and Lee Koppelman. Planning Design Criteria. New York, New York: Van Nostrand Reinhold Co.; 1969.

A reference text for engineering and design standards used in community development. Includes consideration of street and parking requirements, park and recreation facilities, shopping centers, schools, utilities, sewer systems; refuse collection. Gives consideration to the special characteristics of planned cluster developments and their advantages.

21-037 Downs, Anthony. "Alternative Forms of Future Urban Growth in the United States". The American Institute of Planners, vol. 36:1 (January 1970), pp. 3-11.

Suggests ten alternative forms of future urban growth in the U. S. Discusses the additional costs involved in accommodating growth in planned new cities as compared with peripheral or satellite city growth. Emphasizes the need to escalate the level of planning in suburban areas to account for "spillover effects" now ignored by most developers. Concludes that peripheral sprawl will remain the dominant form of future urban growth.

21-039 Edwards, Gordon. Land, People & Policy. West Trenton, New Jersey: Chandler-Davis Publishing Company; July 1969.

An analysis of techniques involved in assembling land to accommodate anticipated urban growth. Considers problems of land assembly in suburbia; critically evaluates new towns and planned unit development as alternatives to lot-by-lot development. Discusses needed government policy and action to improve the efficiency of land-assembly techniques.

21-040 Eichler, Edward P. and Marshall Kaplan. The Community Builders. Berkeley, California: University of California Press; 1967.

An analysis of the new community development process, focusing on the developer -- his organization, financial arrangements, relations with local officials. Contrasts the experiences of California developers with those of Reston and Columbia. Discusses planned community as a business, giving special attention to marketing and taxation variables affecting profits.

21-048 General Electric Company - Tempo. Developing a Methodology for the Evaluation of Proposed New Communities. Santa Barbara, California: General Electric Company; October 1971.

Study of the applicability of the GE financial analysis Models to Office of New Community Development decision making. Variables include land sale revenues, land acquisition and improvement costs, administrative costs, income and property taxes, bond interests, HUD fees. Data from Park Forest South New Community used as an illustrative example.

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Reference Number

CODE 21: NEW TOWNS, PLANNED COMMUNITIES (continued)

21-059 Heroux, Richard L. and William A. Wallace. "On the Development of New Communities". Socio-Economic Planning Sciences, vol. 6:4 (August 1972), pp. 387-407.

Linear programming used to explore the relationship between a planned community and planned development. Model results in an optimum land use plan for a planned community prototype; offers economic and financial analyses of the planned community development process.

21-061 Hoch, Irving. Trade-Offs Involving City Size, Density and Building Type. Washington, D. C.: Institute of Public Administration; December 1969.

Analysis of the question of density and optimum city size. Distribution of building types and densities seen as a trade off between space and ease of access, with majority of households seen as preferring low density, single family residential limits, often categorized as sprawl. Implications for new towns suggested.

21-064 House and Home. "P. U. D. is good for everybody". House and Home (September 1969), pp. 73-79.

Defines the planned unit development concept and suggests its economic and environmental benefits over conventional unplanned "sprawl" subdivisions. Offers examples of the development cost savings available through use of P. U. D., as well as its beneficial impact on the local tax base.

21-066 Howard County (Maryland) Planning Commission. Howard County: 1985. Howard County, Maryland: Howard County (Maryland) Planning Commission; April 1967.

Three alternative development patterns for county's growth to 1985 are analyzed, including one alternative for extension of planned community (of Columbia, Maryland type) for entire county. Patterns were analyzed for comparative costs of water and sewer installation, residential roads, public schools, and parks and open space. Alternative residential land budgets are considered.

21-068 Huntoon, Maxwell C. Jr. PUD: A Better Way for the Suburbs. Washington, D.C.: Urban Land Institute; 1971.

Consideration of planned unit development as an alternative to suburban sprawl. Some general discussion of the fiscal impact of planned unit development as contrasted with typical single family subdivisions regarding school loads, streets, sewers, storm drainage, and public service costs. Offers cost comparisons between two PUD's and comparable unplanned projects; project information on twelve other cluster developments.

21-075 Lansing, John B. et. al. Planned Residential Environments. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 1970.

Analysis of resident satisfaction with living conditions in seven communities reflecting varying degrees of planning. Also considers outdoor recreation facilities offered, frequency of use, and ease of access. Information on car ownership and usage.

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Reference Number

CODE 21: NEW TOWNS, PLANNED COMMUNITIES (continued)

21-077 Lichfield, Nathaniel. "Cost-Benefit Analysis in Urban Expansion: A Case Study-Peterborough". Regional Studies, vol. 3 (February 1969), pp. 123-155.

Analysis of the impact of doubling the size of Peterborough, a new town in England using five possible alternative growth patterns. Suggests a method for rationalizing choice among planning alternatives through cost-benefit analysis. Considers both land development and public service costs.

21-080 Llewelyn-Davies Associates. A New Community in Amherst: Volume I. New York, New York: New York State Urban Development Corporation; 1971.

Development plan for a new community in the Buffalo, New York metropolitan area. Includes information on development costs and fiscal impact.

21-081 Llewelyn-Davies Associates. A New Community in Amherst. Volume 2. New York, New York: New York State Urban Development Corporation; 1971.

Detailed analysis of community service, utility, sewer, solid waste and storm drainage systems for the Amherst New Community in the Buffalo metropolitan area.

21-082 Louisville University, Urban Studies Center. An Exploratory Analysis of a New Community & Regional Development Relocation System. Louisville: Urban Studies Center; Report prepared for the Kentucky Office of Program Development for Appalachian Regional Commission; January 1970.

Proposes new community near Louisville planned for rural Appalachian and urban inner residents. Noteworthy analysis of costs of school and police facilities required to meet the needs of unusual proposed population mix.

21-083 Lynch, Kevin. Site Planning. Cambridge, Massachusetts: M.I.T. Press, Second Edition; 1969.

Consideration of the techniques of site planning, including orientation to terrain, topography, and climate as they affect the provision of infrastructures. Cost estimates offered for various infrastructure items.

21-087 McGivern, William C. "Putting A Speed Limit on Growth". Planning (November 1972), pp. 263-274.

A case study of the problems of rapid unplanned urbanization faced by a northern California community and the resulting governmental response. New development proposals now evaluated on a 10 point rating scale for 14 criteria of public service availability, quality of environmental design, and social welfare impact.

21-088 McKeever, J. Ross (ed). The Community Builders Handbook. Washington, D.C.: Urban Land Institute; 1968.

Outlines in great detail procedures and standards for design of residential areas, community and neighborhood facilities, shopping centers, and industrial parks. Gives some mention to the contrast between sprawl and planned development. A practical guide for developers, builders, government officials, planners, etc.

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CODE 21: NEW TOWNS, PLANNED COMMUNITIES (continued)

21-091 Metropolitan Fund, Inc. Regional New Town Design: A Paired Community for Southeast Michigan. Detroit, Michigan: Metropolitan Fund, Inc.; 1971.

A discussion of the paired new town concept, combining redevelopment of an inner City area with construction of a new community on the urban fringe includes plan for the Detroit metropolitan area and analysis of development costs.

21-099 National Association of Homebuilders. "Land Use in New Towns". Economic News Notes (July 1972).

Discusses the contrasts between land use patterns in planned new communities and conventional large scale developments. Offers data on land use in selected new communities of various sizes.

21-102 Nunn, Douglas. Newcom: Volume III-The Physical Environment. Louisville, Kentucky: The Urban Studies Center, University of Louisville; November 1971.

Regional and local area analyses for physical planning components of the Louisville New Town. Thorough consideration of environmental impact of alternative locations for the new community; suggests alternative land use plans.

21-110 Real Estate Research Corporation. Economic and Financial Feasibility Models for New Community Development. Washington, D.C.: Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1971.

Study assesses differences between economic and financial feasibility of proposed new communities. Studies of financial feasibility, including computerized models, are available. Provides an assessment of how economic feasibility might be integrated with financial feasibility to analyze success or failure of proposed new communities. Offers data on land development costs for various housing types.

21-114 The Rouse Company. An Analysis of Development Trends and Projections and Recommendations for a New City in South Richmond. Columbia, Maryland: The Rouse Company: May 1970.

Gives planning and development goals for South Richmond; New Community in New York City; major physical and economic factors influencing development; alternative development patterns; and economic analysis; and strategy for implementation.

21-115 Sachs, W. S., Jr. "'Everybody's Talking about the Advantages of P.U.D. But, Does the Green-Look Really Pay Off in Long Green?'" House and Home, vol. 39:6 (June 1971), p. 26.

Contrasts site development costs for a 170 acre tract of land developed as a PUD and as a conventional single family subdivision.

21-116 Savings & Loan News. "Balancing Profit and the Environment: Three PUDS Show the Way". Savings & Loan News (February 1973), pp. 56-63.

A description of three newly approved planned unit development projects, emphasizing the environmental amenities and open space areas to be provided.

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Reference Number

CODE 21: NEW TOWNS, PLANNED COMMUNITIES (continued)

21-133 U. S. Department of Housing and Urban Development. Project Agreement Between the United States of America and Flower Mound New Town, Limited. Washington, D. C.: U. S. Department of Housing and Urban Development. Distributed by NTIS, Springfield, Virginia; 1971.

Title VII loan guarantee agreement between the developers of The Flower Mound New Town in Texas and the HUD Office of New Community Development. Appendix data on school facility requirements, commercial space, and acreage allowance for roads and open space.

21-137 Urban Land Institute. "How Do You Like Living in a Planned Community?" Urban Land, vol. 31:1 (January 1972), pp. 3-13.

A summary of the University of Michigan Institute for Social Research study on resident satisfaction in seven communities reflecting various degrees of planning.

21-138 Urban Land Institute. "Is Dispersal the Answer to Urban 'Overgrowth'?". Urban Land, vol. 29:1 (January 1970), pp. 3-12.

Analyzes national and regional urbanization trends; suggests a geographic distribution of new towns and planned communities to accommodate anticipated population growth of 30 million between 1970 and 2000.

21-150 Crouch, R. L. and R. E. Weintraub "Cost-Benefit Analysis of a PUD". Urban Land, vol. 32:6 (June 1973), pp. 3-13.

Outlines clearly method for economic analysis of costs and benefits of a particular PUD. Illustrates calculation of school costs and revenues, municipal budget, congestion and air pollution, and water and waste disposal.

21-151 Educational Facilities Laboratories, Inc. New Towns, New Schools? Working Paper No. 1. New York, New York: Educational Facilities Laboratories, Inc.; November 1972.

Attempts to outline the experience to date in planning and implementation of educational systems in new communities. Documents the problems faced by developers and municipalities in planning for schools.

21-152 Educational Facilities Laboratories, Inc. Schools for New Towns. Working Paper No. 2. New York, New York: Educational Facilities Laboratory, Inc.; May 1973.

As a companion volume to Working Paper No. 1, outlines options available for solving planning, financing and facilities problems discussed in preceding report.

21-153 U. S. Postal Service Headquarters, Economic Analysis Division. New Towns and the U. S. Postal Service: Some Guidelines for Postal Officials and New Town Developers. Washington, D. C.: U. S. Postal Service Headquarters; Economic Analysis Division; 1973.

Proposes set of guidelines for postal managers and new town developers, who will have to encounter and solve the immediate and long range postal problems associated with new communities.

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Reference Number

CODE 22: ENVIRONMENTAL IMPACT
Classification: Primary

22-005 Ayres, Robert U. and Ivar Gutmanis. "Technological Change, Pollution and Treatment Cost Coefficients in Input-Output Analysis". Population, Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.

Presents an attempt to quantify levels of pollution (air, water, solid waste) for households; industrial and institutional sources. Also develops data per unit of output for costs of abatement and distribution of annual abatement costs. Values for pollution levels and costs calculated as coefficients for analysis in input-output table.

22-006 Ayres, R. U. and M. Lucius Walker. An Aggregated Impact Model for Environmental Pollutants. Washington, D.C.: International Research and Technology Corp.; 1970.

Description and illustration of a systems analysis model to determine time/distance factors related to air pollution effects.

22-007 Barton-Aschman Associates, Inc. The Barrington, Illinois Area: Evaluation of Growth and Governmental Alternatives. Prepared for the Barrington Area Development Council. Chicago, Illinois: Barton-Aschman Associates; 1970.

Evaluates three growth alternatives and four governmental alternatives from which local residents can make a selection and develop courses of action. The three growth alternatives entailed (1) existing trends, (2) limited development and (3) accelerated development; the 4 governmental alternatives entailed (1) existing trends, (2) area-wide cooperation, (3) planned annexation and (4) consolidation.

22-024 Herfindahl, Orris C. and Allen V. Kneese. Quality of the Environment. Baltimore, Maryland: Resources for the Future, Inc.; 1965.

Non-scientific discussion of the economics of environmental protection; broad scope; some commentary on development alternatives and their impact.

22-027 Hoch, Irving. "Urban Scale and Environmental Quality". Population, Resources, and the Environment, Volume 3. Washington, D.C.: U.S. Commission on Population Growth and the American Future, U.S. GPO; 1972.

Examines the relationship between scale of urban areas (as expressed in density, land value and rent) and quality of the environment. Elements of physical environment -- air quality, water quality, solid waste disposal and noise -- considered as well as social environment - congestion, crime, and health and welfare. Contains data for levels of environmental quality at various scales of population or size of urban area.

22-030 Isard, Walter et. al. Ecologic-Economic Analysis for Regional Development. New York, New York: The Free Press; 1972.

Reviews economic models for regional analysis, including comparative cost, input-output, gravity model, and activity complex analyses. Uses the techniques in relation to ecological systems. Develops extended case study for Plymouth Bay (Massachusetts) recreation area.

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Reference Number

CODE 22: ENVIRONMENTAL IMPACT (continued)

22-032 Jordan, Paul. The Impact of Growth on the Environment of San Jose. Santa Monica, California: The Rand Corporation; February 1973.

Outlines trends of environmental change in the City of San Jose; identifies critical impacts of population or economic growth on the environment.

22-034 Kaiser, Edward J. et. al. Promoting Environmental Quality Through Urban Planning and Controls. Chapel Hill, North Carolina; Center for Urban and Regional Studies, University of North Carolina; (forthcoming).

Three part study that focuses on the consciousness and practice in local and metropolitan planning agencies in promoting environmental quality through use of land use control techniques.

22-039 Kreith, Frank. "Lack of Impact". Environment Magazine, vol. 15:1 (January 1973), pp. 26-33.

Outlines background of required filing of environmental impact statements. Discusses effectiveness of environmental impact review in protecting the environment and gives illustration of how review process works.

22-042 Leopold, Luna B. et. al. A Procedure for Evaluating Environmental Impact. Washington, D.C.: U.S. Geological Survey; 1971.

Describes the matrix system of evaluating environmental factors developed by the USGS.

22-043 Livingston and Blayney, City and Regional Planners. Santa Rosa Optimum Growth Study. Santa Rosa, California: Santa Rosa Planning Department; January 1973.

Projects realistic minimum and maximum possible growth of planning area in next 20 years. Using population projections of 140,000 to 250,000, an analysis of urban scale with respect to public costs, environmental impact, transportation constraints, and economic social, and educational opportunities.

22-046 McHarg, Ian L. Design With Nature. Garden City, New York: Doubleday and Co.; 1969.

Deals in rather metaphysical terms with the need for harmonious relationship between man and nature. Outlines regional planning methodology to account for ecological features.

22-053 Orange County Planning Department. Orange County Population Growth Policy and Development Strategy Study: Phase II Report. Santa Ana, California: Orange County Planning Department; 1972.

An analysis of the implications of current population growth trend in Orange County, California. Rapid, unplanned development has resulted in a "linear sprawl" along freeway routes leading to Los Angeles. Existing policy has been to accommodate and promote new growth without regard to its impact on the environment, transportation, open space, public service costs.

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CODE 22: ENVIRONMENTAL IMPACT (continued)

22-058 Runnels & Roessler. Kansas City International Airport and Vicinity Development Plan. Kansas City, Missouri: Runnels & Roessler, Environmental Associates; 1970.

Plans and programs are developed to accommodate over 500,000 people in the planning area before the end of the century. Development is intended to be guided into clearly discernible new communities and industrial parks, and an effort is made to avoid urban sprawl. Utilities, transportation systems and community facilities are to be coordinated with this planning system.

22-068 U.S. Environmental Protection Agency. Land Use and The Environment. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; 1970.

Anthology of readings on methodologies available to decision makers involved in land use issues. Purpose is to improve the environmental sensitivity of the decision making and comprehensive planning process.

22-070 U.S. Environmental Protection Agency, Office of Research and Monitoring. Strategic Environmental Assessment System. Washington, D.C.: U.S. EPA, Office of Research and Monitoring; February 1973.

Tries to develop methodologies which will enable the EPA to determine trends, processes, activities and policies which may have a detrimental or beneficial future effect on the environment and to better assist the decision makers in understanding the less apparent consequences of their decisions.

22-074 Veri, Albert. The Proposed Three Islands Development-Hallandale and Hollywood, Florida. Coral Gables, Florida: The Center for Urban Studies, University of Miami; February 1, 1972.

Evaluates the proposed Three Islands Development relative to its effect on the surrounding environment.

22-075 California Council of Civil Engineers and Land Surveyors. Environmental Impact Analysis. Sacramento, California: California Council of Civil Engineers and Land Surveyors; 1972.

Gives an elementary outline of methods of undertaking environmental impact analysis, with discussion of sources of data, procedures for analysis, and methods of presentation.

22-076 Nicholas Quennell Landscape and Environmental Planning. Rancho San Diego: Landscape and Environmental Considerations, Volumes I and II. New York, New York: Nicholas Quennell; December 1972.

Detailed analysis of environmental characteristics of a new community site, including assessment of terrain, soil, water, vegetation and wildlife, climate, noise and open space. Contains recommendations and implementation procedures.

22-077 Medford Township, New Jersey. Draft Ecological Planning Study and Zoning Ordinance Modifcations. Unpublished; 1973.

Proposal to modify the township zoning ordinance in accordance with ecological principles.

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CODE 22: ENVIRONMENTAL IMPACT (continued)

22-078 Belknap, Raymond K. and John G. Furtado. Three Approaches To Environmental Resource Analysis. Cambridge, Massachusetts: Graduate School of Design, Harvard University; 1967.

Outlines three methodologies for comprehensive environmental planning and design. Contains illustrative analysis of the same site, so that a comparison of the techniques is possible.

22-079 Jacobs, Peter and Douglas Way. Visual Analysis of Landscape Development. Cambridge, Massachusetts: Graduate School of Design, Harvard University; 1968.

Description of method of measuring visual absorption capacity of different landscape types.

22-080 Kormondy, Edward J. Concepts of Ecology. Englewood Cliffs, New Jersey: Prentice-Hall; 1969.

Basic introductory exposition of ecological systems and their interactions.

22-081 Rockefeller Brothers Fund. The Use of Land: A Citizen's Policy Guide To Urban Growth. New York, New York: Thomas Y. Crowell Company; 1973.

A discussion of the problems inherent in present land development practices, with special emphasis on open space preservation and other environmental effects. Suggests new laws and incentives to improve future subdivisions.

ANNOTATED BIBLIOGRAPHY

Reference Number

CODE 23: PREFERENCE
Classification: Primary

23-002 Christen, Francois G. Citizen Preference for Home, Neighborhood, and City in Santa Clara County. Santa Monica, California: The Rand Corporation; March 1, 1973.

Gives methodology used for determining residents' preferences; also results of study conducted in San Jose.

23-006 Highway Research Board. Moving Behavior and Residential Choice. Washington, D. C.: Highway Research Board, National Cooperative Highway Research Program, Report No. 81; 1969.

From interviews of a representative sample of some 1,500 households in various metropolitan areas in U. S., logical relationships were developed for desired home types, price ranges, travel access mixes, and living qualities.

23-007 Hille, Stanley J. and Theodore K. Martin. "Consumer Preference in Transportation". Highway Research Record No. 197. Washington, D. C.: Highway Research Board; 1967, pp. 36-44.

Identifies characteristics of ideal transportation system as conceived by the consumer. Results based on sample survey in Baltimore metropolitan area and selected adjacent rural areas. Based on individual consumer attitudes and motivation rather than consumer travel performance.

23-008 Hinshaw, Mark and Kathryn Allott. "Environmental Preferences of Future Housing Consumers". Journal of the American Institute of Planners, vol. 38:2 (March 1972), pp. 102-107.

A survey of young people of various socio-economic, racial, and ethnic backgrounds to determine their attitudes toward mixed land uses, cluster housing, proximity of residence to workplace, recreation facilities -- concepts normally associated with new towns or planned unit development. Predicts that the next generation of housing consumers will not alter preferences for single-family detached homes in suburban locations.

23-009 Lansing, John B. et. al. Residential Location and Urban Mobility. Ann Arbor, Michigan: Institute for Social Research, The University of Michigan; 1964.

Survey results regarding user satisfaction with residential location, recent or prospective moves, automobile ownership and use, choice of transportation modes for the journey to work, and trips taken in an average day. Concludes that the decision to move to an urban fringe location is unlikely to be affected by commuting inconvenience and distance to work, or by the cost of driving.

23-010 Lansing, John B. and Eva Mueller. "Residential Location and Urban Mobility". Highway Research Record No. 106. Washington, D. C.: Highway Research Board; pp. 77-96.

Summary of study done for Institute for Social Research, University of Michigan in 1964 regarding user satisfaction with residential location and travel modes.

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CODE 23: PREFERENCE (continued)

23-011 Lansing, John B. and Gary Hendricks. Automobile Ownership and Residential Density. Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan; June 1967.

Basically deals with choice of residential location in urban areas and choice of mode of travel; analyzes factors causing increasing auto ownership and total vehicle miles of travel by auto per family; also analyzes mode of travel for journey to work.

23-012 Menchik, Mark D. Residential Environmental Preferences and Choice: Some Preliminary Empirical Results Relevant to Urban Form. Philadelphia: Regional Science Research Institute, Discussion Paper Series No. 46; 1971.

A study of housing environmental preferences expressed independent of actual market choices. Heavy emphasis on environmental quality characteristics as expressed by residents surveyed. Also considers responses to higher density and mixed uses found in planned developments; access to work, schools, churches; perceptions regarding neighbors; housing unit characteristics.

23-016 Urban Land Institute. "The Tenants' Point of View". Urban Land, vol. 29:2 (February 1970), pp. 3-8.

Includes an in-depth analysis of apartment resident attitudes to assist the apartment developer and the builder and realtor.

23-018 Weiss, Shirley et. al. Residential Developer Decisions: A Focused View of the Urban Growth Process. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; 1966.

Studies the implications of various public policies for land development by developing a probabilistic model with the capability of forecasting the spatial pattern of urban growth resulting from various mixes of priming decisions. It has been calibrated with sufficient accuracy to enable the user to make comparative studies of the generalized pattern of residential development which could be expected under different proposed policy positions with respect to various priming actions.

23-019 Werthman, Carl, Jerry Mandel, and Ted Dienstfrey. Planning and the Purchase Decision: A Study of Why People Buy in Planned Communities. Prepared For the Community Development Project; 1965.

An analysis of user satisfaction with the decision to purchase homes in planned developments in California; considers resident perception of the effects of planning and its importance to them, and the effects of social class on these perceptions. Concludes that the beneficial effects of planning as viewed by the planner may differ sharply from perceptions voiced by community residents.

23-021 Zehner, Robert B. "Neighborhood and Community Satisfaction in New Towns and Less Planned Suburbs". Journal of the American Institute of Planners, vol. 37:6 (November 1971), pp. 379-387.

Compares several measures of neighborhood and community satisfaction and attraction. Maintenance level ratings were best predictors of satisfaction at neighborhood scale; extent of community planning in new towns and accessibility to work and local facilities were important at the community scale.

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Reference Number

CODE 23: PREFERENCE (continued)

23-022 Institute for Environmental Studies. Case Studies of Six Planned New Towns. Lexington, Kentucky: Institute for Environmental Studies, University of Kentucky; March 1973.

Assessment of characteristics of new communities in United States, based on interviews with residents. Contains socio-economic data, as well as attitude surveys.

23-023 Norcross, Carl. Townhouses and Condominiums: A Survey of Residents' Likes and Dislikes. Washington, D.C.: Urban Land Institute; 1973.

A survey of townhouses and condominiums across the nation focusing on preferences of residents.

23-024 Real Estate Research Corporation. Market Analysis, Cluster Housing, Houston, Texas. Houston: RERC; 1972.

Survey of luxury housing units for residents' preferences with reference to amenities offered.

23-026 Weiss, Shirley F. Consumer Preferences in Residential Location: A Preliminary Investigation of the Home Purchase Decision. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina; 1966.

A broad array of choice variables contribute to the home purchase decision depending on varying degrees of association with identifiable household characteristics. The most important factors in future locational choices were: quality and character of homes in neighborhood; large lot; neighborhood with good reputation and prestige; total cost of house and lot; and nearness to schools. The importance of each choice item varied with socioeconomic groups.

CREDITS

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3	very important
2	important
1	unimportant
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